Running head: NETWORK CENTRIC LOGISTICS SOLUTION

SAP: Is it the Network Centric Logistics Solution for the Army Medical Department?

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Abstract

This study identifies whether DMLSS or SAP is better suited to act as the transformation agent to align the Army Medical Department with the Single Army Logistics Enterprise. This was accomplished through the use of supporting reference material based upon the concepts, studies, and the principles of Army Transformation, Focused Logistics, Force Health Protection, Enterprise Resource Planning, intermediate level CLVIII supply support requirements, current medical logistics information systems, requisition and data flow, and communications requirements. Methods for evaluation were based upon Gartner's comprehensive study. Results indicated under the current requirements of cost effectiveness, DMLSS is better suited to act as the system that will transform the medical logistics supply chain to the Single Army Logistics Enterprise. Training is key to the successful integration of medical logistics information systems at all levels of CLVIII supply chain to include DMLSS and a future ERP solution. If the Army Medical Department is going to transition to an enterprise resource planning system then they need to establish a joint training environment for medical logistics automated information systems and consider the training requirements over the entire life cycle of the enterprise system.

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Introduction

Conditions Prompting the Study

Joint Vision 20/20 doctrine dictates that the success of our future military will be based upon speed, precision, lethality, and information dominance (Office of the Assistant Deputy Under Secretary of Defense/Logistics Systems Management, & Chainlink Research, 2002). Supply chain focused logistics to include information technology, will be the key enabler in projecting and sustaining our combat forces in future operations.

Reducing the logistics footprint with increased responsiveness is the key to the success of transforming the Army into a combat force that is lighter, more strategically responsive, and capable of filling the gap that our current heavy armor and light infantry divisions cannot. Currently, our light infantry divisions are too light. They can rapidly deploy but lack the combat power, tactical mobility, and sustainability to fight over long periods of time and distances. Conversely, our heavy mechanized divisions are too heavy. Their combat power, tactical mobility, and sustainability are unmatched anywhere in the world. However they take too long to deploy and require far-reaching lines of support. Former Army Chief of

Staff, General Shinseki, realized that the United States couldn't fight future conflicts with a cold war era army. In October of 1999 he announced plans to transform the Army into a force that can deploy a combat brigade anywhere in the world in 96 hours, a division in 120 hours, and five divisions in 30 days (U.S. GAO, 2001). Even the current Army Chief of Staff, General Schoomaker wants to expand on this concept by looking to make the Army more joint, inter-agency capable, modular, and expeditionary. His goal is to redesign the current brigade force structure based on the recent lessons learned during Operation Enduring Freedom and Operation Iraqi Freedom such as fires in the close fight, warfighting in urban terrain, and support and stability operations. The Army can deploy 33 brigade size combat teams in support of the current national command strategy. The Army Chief of Staff and the Army Training and Doctrine Command are looking to redesign the brigades into smaller more lethal units of action like the Stryker Brigade Combat Teams. This change in structure will increase the number of active brigades to 48 and also increase the number of reserve brigades from 15 to 22 (Naylor, 2003). This leaner more agile objective force will project its power over greater distances creating longer lines of supply and communication. The Chief of Staff's vision also establishes a mandate "to revolutionize the

way the Army projects and sustains the force” (Office of the Deputy Chief of Staff, G-4, 2003, p 2).

This “revolution” in logistics calls for the joining together of supply, transportation, acquisition, and information systems based on the transformation initiatives that define the Future Logistics Enterprise (FLE). These transformation initiatives of Enterprise Integration, Total Life Cycle Systems Management, End to End Distribution, Executive Agents, Depot Maintenance Partnerships, and Condition Based Maintenance Plus enables FLE to join the Army with our nation’s industrial base providing an end-to-end (cradle to grave) supply chain from the Continental United States (CONUS) to the theater of operations. This revolution also changes the way the Army has conducted business since World War II by making FLE initiatives fully integrated and interdependent of one another. Based on the Quadrennial Defense Review of September 2001, Secretary of Defense Donald Rumsfeld in his 2002 Annual Report to the President and Congress stated that the Department of Defense (DoD) needs to shift from a “threat based, requirements-driven, force development process to a capabilities-based, concepts-driven force planning process.” The capabilities-based process originates from a pre-emptive national defense strategy where operational commanders utilize interrelated military tasks to support a wide array of military missions. Simply stated, the

United States military no longer waits for the fight. It takes careful consideration of the operational environment (tactical, logistical, and information superiority), thoroughly analyzes force capabilities, and conducts operations safeguarding the national interests of the United States.

Mission success depends on a fully integrated supply chain. Referred to as ‘focused logistics,’ it is the logistician’s ability to provide the operational commanders the right personnel, equipment, supplies, and support “in the right place, at the right time, and in the right quantities, across the full range of military operations” (Office of the Deputy Chief of Staff, G-4, 2003, p 5). These objectives will be achieved by linking operational commanders and logisticians through the implementation and fielding of network centric systems, creating a global network that will provide timely and accurate information across supply chains, institute logistics situational awareness, and total asset visibility as part of the decision-making and planning process. The opportunities listed above are the very roots of Enterprise Resource Planning (ERP), which provides the architectural blueprint that will allow the movement, by the blending of support functions to include information management towards a network centric logistics information system and a smaller logistics footprint.

In its efforts to aid in the reduction of the logistical footprint and to provide optimal health care support, the challenge faced by the Army Medical Department (AMEDD) is to "protect our nation's service members from all health and environmental hazards associated with military service" (United States Army Management Staff College, 2003). How does this tie in with FLE? The Army Surgeon General and the AMEDD have determined that the most valuable, complex weapon systems the U.S. military will ever field are the men and women of the Army, Navy, Air Force, and Marines (United States Army Management Staff College, 2003). In order to meet this challenge and to continue to give testimony to the AMEDD's mission of "Conserving the Fighting Strength," it is imperative for Medical Logisticians to provide the right medical materiel in order to sustain a healthy and fit force. The life cycle maintenance program for this healthy and fit force is known as Force Health Protection (FHP). Successful transformation to an objective military health system is reliant on medical logisticians who can provide medical supplies and equipment, medical maintenance, blood storage and distribution, and optical fabrication to the U.S military and their families at the right place, at the right time, and the right quantities across the continuum of missions in both peace and in war.

The mechanism for managing these core functions will be the implementation of a medical logistics automated information system that will adapt ERP best business practices, with an architecture designed to fulfill the requirements of synchronized logistics set forth by Army Logistics Transformation.

There are two primary logistics systems that currently manage the core logistics functions of the AMEDD. These systems are the Theater Army Medical Management Information System (TAMMIS) and its tri-service replacement, the Defense Medical Logistics Standard Support (DMLSS), which falls under the Joint Medical Asset Repository (JMAR).

The more modern of the two systems, DMLSS was developed and introduced to the military health system (MHS) in the mid 1990's as a medical logistics automated information system (AIS) to fully integrate the Army, Air Force, and Navy (to include the Marines) supply chains into a common logistics operating environment. The Army began fielding DMLSS to its medical treatment facilities in the fall of 2001 and is developing an assemblage management standalone module as part of the Theater Medical Information Program (TMIP) in support of FHP under focused logistics. Currently, DMLSS is the system that is projected to be the vehicle that will allow the components of

FHP to be part of the Army logistics architecture that will support the objective force.

In the early months of 2002, the United States Army Medical Materiel Agency (USAMMA) in coordination with SAP, the Defense Logistics Agency (DLA), Defense Personnel Support Center, and the Defense Systems Integration Office implemented SAP phase I for assembly, inventory, requisition, and financial management (USAMMA, 2003). This ERP solution, appropriately named the USAMMA Revolution in Logistics (URL), provides the AMEDD with a network centric system that allows USAMMA to act as the executive agent for the design, building, and management of medical assemblages for the DoD.

Statement of the Problem or Question

It is the agencies within the DoD, such as DLA and the U.S. Army's Transportation Command (TRANSCOM), that are adopting ERP/SAP as their solution for Army logistics transformation, while at the same time the AMEDD is continuing to develop and field non-ERP systems (DMLSS and TAMMIS), which prompted this study. The research question being studied is the following: Is the enterprise resource planning solution SAP the network centric logistics solution for the Army Medical Department?

Literature Review

If the U.S. Military under the objective force is going to be more agile, lethal, and demonstrate operational superiority

on the battlefield, then it must have a supply chain infrastructure that is flexible and responsive, and have initiatives, which promote the full potential of the future logistics enterprise. A DoD report to Congress titled *Network Centric Warfare* (Department of Defense Command and Control Research Program, 2001) concluded the following:

> Focused logistics will effectively link all logistics functions and units through advanced information systems that integrate real-time total asset visibility with a common operational picture. These systems will incorporate enhanced decision-support tools that will improve analysis, planning, and anticipation of warfighter requirements. They will also provide a more seamless connection to the commercial sector to take advantage of applicable advanced business practices and commercial economies.

What this does for the logistician is that it makes available real-time information and total asset visibility of the entire supply chain (the end to end distribution from the industrial base to the warfighter) in order to effectively support the operational commanders intent. Total asset visibility allows logisticians to provide the operational commander with focused logistics by distributing the right supplies and equipment in the right place, at the right time,

with the right quantities. The return on investment (ROI) is a significant reduction in the logistics footprint while simultaneously affording operational commanders the ability to project more combat power into the battle space.

In order to have assured success of the objective force, the United States must continue to invest in and develop logistics AIS that fall within the architecture of focused logistics (Department of Defense Command and Control Research Program, 2001). According to the Assistant Secretary of Defense for Networks and Information Integration, John P. Stenbit, DoD plans to spend $17 billion over the next five years on systems and programs that intend to bring more information to logisticians and operational commanders faster than ever before (Costa, 2003).

For the last four decades, the DoD has invested billions of dollars in proprietary AIS equipped with software and functionalities that are specific to a particular system or supporting customer. Referred to as legacy and/or migration systems, the result is a network of over six hundred logistics automated information systems that offer no interoperability and are so old that some of the systems are no longer supported by the original manufacturer (Office of the Assistant Deputy Under Secretary of Defense/Logistics Systems Management, & Chainlink Research, 2002). This has led to the costly maintenance of

millions of lines of nebulous code and contractors who maintain and develop additional software support packages for these systems (U.S. GAO, 2001). The DoD, through years of continuous upgrades, has forced themselves into a position where they have no choice but to pour funding into these systems in order to keep them operational (U.S. GAO, 1996). An example of this is the use of proprietary systems by DLA, who is currently using four of these systems. The Standard Materiel Management System (SAMMS), Defense Integrated Subsistence Management System (DISMS), SAMMS Procurement by Electronic Data Exchange (SPEDE), and the Defense Pre-award Contracting System (DPACS) rely on nothing more than an assembly of Cobol based mainframes that have been in existence since the early 1970s. The problem is that these mainframes provide DLA with inadequate analytical capability and total asset visibility causing long lead times and lower percentages of fill when it comes to supporting customers (U.S. GAO, 2001). Theses outdated and cumbersome systems are largely the reason why it would take days and sometimes weeks for customers to receive ordered supplies and to seek other methods for supply requisition like Prime Vender to effectively receive supplies in a timely manner and to reduce lead times.

Focused logistics, with the objective of full spectrum dominance does away with these outdated systems and calls for a

network centric logistics system that is interconnected in a fully integrated supply chain that is joint, inter-agency capable, multinational (JIM), and is aligned with the FLE. The Department of Defense is adopting ERP as the delivery mechanism for full spectrum logistics dominance (Enterprise Integration Inc., 2003). The allure of ERP applications by the DoD is that it standardizes business processes with a clean database, thereby erasing the complexity and expense problems that continue to bog down legacy systems (Conolly, 1999). ERP began its roots in the 1970s and has evolved to become the industry standard in integrated information. ERP is comprised of readily available commercial-off-the-shelf (COTS) software rather than software designed to be customer specific (proprietary). ERP software packages are designed to support multiple business practices and data for large organizations globally, providing them with real time financial, accounting, logistics, transportation, and human resource data. This integrated data environment of business practices is essential for successful ERP implementation into a fully integrated supply chain (Enterprise Integration Inc., 2003).

Currently, the DoD relies on data and asset visibility information collected from each of the major commands in the Army, Navy, Air Force, and Marines and integrates this information to formulate a “big picture” that is more of a

snapshot than real-time information. By integrating logistics information across the entire spectrum, DoD can standardize their business processes, become more efficient, and maximize their returns on investments based upon best business practices that can be incorporated into the logistics enterprise architecture. These advantages will provide the DoD with the information superiority they need to achieve full spectrum dominance. The vision of logistics enterprise integration "consists of a fully integrated knowledge environment that builds, sustains, and generates warfighting capability through a fully integrated logistics enterprise based upon collaborative planning, knowledge management, and best business practices" (Enterprise Integration Inc., 2003, p 166). The Army's approach to solving logistics requirements with AIS has at best been diffused. The Army's logistics community to include the major commands (MACOMs) have put in place their own unique systems in order fulfill specific logistics requirements. The Single Army Logistics Enterprise describes this as a "landscape consisting of a multiplicity of automated systems which, in turn, has resulted in no single corporate view of the Army's supply chain and has become a very complex, expensive environment to sustain" (Enterprise Integration Inc., 2003, p. 165). Collaboration within the Army's logistics community through the sharing of requirements, information, and technology

will lay the groundwork for the successful implementation of enterprise wide systems that will make up the Single Army Logistics Enterprise.

ERP vendor SAP, who is the third largest producer of software and controls the majority of the ERP market share, was selected by the U.S. Army to transform it into the Single Army Logistics Enterprise. The Army culture needs to realize that this ERP software solution is not the silver bullet for successful transformation. There have always been unrealistic expectations placed on AIS creating a “bandwagon effect” where everyone tends to believe that these system solutions will solve all the Army’s supply chain problems. There are clearly barriers that can bog down or even cause total ERP implementation failures. According to the Rockford Consulting Group (1999), successful ERP implementation failure is the biggest barrier faced by ERP software vendors. Rockford Consulting Group (1999) goes on to cite that there are four major reasons that organizations get overwhelmed or fail in implementing ERP software packages. These reasons are:

- Undefined requirements leading to a poor ERP architectural blueprint
- Poor COTS selection of ERP software
- Inadequate resources and human capital

- Organizational culture that is resistant to change (change management)

Organizational requirements must be clearly defined with sufficient time to adequately plan and make the transition. Rockford Consulting Group (1999) revealed through surveys of former ERP clients that undefined requirements accounted for nearly 60% of all ERP implementation failures. Even though the Army is creating a logistics' architecture for ERP, it is a very decentralized organization made up of MACOMs where personnel are separated into combat arms, combat support and combat service support units, and are further separated by service branches and military occupational skill sets. This creates many complex interfaces and could prove to be very costly. The more decentralized an organization is the more the total cost of ownership is going to be. The Army has invested heavily in several logistics AIS modernization programs, however they have yet to be integrated with one another and there is a possibility that they can't be written into the logistics architecture (Enterprise Integration Inc., 2003). In an Army Logistic ERP study conducted by the consulting firm Gartner, Inc., it was assessed that a poor COTS selection of ERP software can result if the Army fails to adequately develop requirements definitions for their enterprise architecture (Enterprise Integration Inc., 2003).

The same study also revealed, that the Army should closely manage resources and its investment in human capital. The transition to a Single Army Logistics Enterprise is an enormous undertaking and its success will be ensured by the creation of an Army Logistics ERP framework, which provides governance functionality on a three tier level of executive/strategic, execution/program oversight, and at the technical level (Enterprise Integration Inc., 2003). Personnel appointed to governance positions should fill them as primary positions and not as an additional duty.

With an end state of a “One Army” logistics architecture, one of the biggest challenges facing the Army is change management. Army leaders need to communicate the change strategy plan at all levels. Leadership needs to identify the risks involved and be able to build a case for change. Lack of involvement at all levels can undermine the very essence of logistics transformation.

As mentioned earlier, successful transformation to an objective military health system is reliant on medical logisticians who can provide medical supplies and equipment, medical maintenance, blood storage and distribution, and optical fabrication to the U.S military and their families across the continuum of missions faced by the military. Developing the right logistics architecture is one of the most difficult tasks

faced by the AMEDD today. The current system being fielded to act as the transition mechanism for AMEDD transformation is DMLSS. DMLSS is not an ERP platform and even though it has interoperability with its systems in the sister services, it does not have the same capabilities as SAP/ERP platforms being incorporated into the FLE. This has led USAMMA and the United States Army Medical Materiel Agency Europe (USAMMCE) to seek ERP solutions as part of their modernization plans. USAMMA began building their business blueprint (URL) with International Business Machines (IBM) and SAP in the mid 1990s and is now running SAP phase I as the executive agent for medical assemblages. This past year, USAMMCE hired the German consulting firm Gartner, Inc. to conduct a study based upon a comparison of functionalities (Appendix A) between SAP and DMLSS to help USAMMCE determine if DMLSS or an ERP platform could be incorporated into their modernization plan. The challenge faced by AMEDD logistics is to develop a centralized enterprise architecture that allows interoperability between DMLSS and SAP logistics platforms.

Purpose (Variables/Working Hypothesis)

The purpose of this Graduate Management Project (GMP) is to determine if SAP or DMLSS is the transition agent that will allow the AMEDD to promote and sustain a healthy and fit force under FHP. This GMP will be exploratory, descriptive, and

explanatory in nature as found in the form of the classic single-case study (Table 1). This case study is based upon a linear-analytic structure that is commonly used in the composition of most case studies and will be used to determine the outcomes of the research question (Yin, 1993). Exploratory research regarding this study is defined (Cooper & Schindler, 2001) as research undertaken to expand the understanding of the research problem, identifying alternative ways others have addressed or solved the problem, identifying and gathering information to formulate and refine the research question, and identifying sources.

The variables studied in this GMP are the government-off-the-shelve DMLSS platform and the ERP/SAP platform as the logistics system for AMEDD transformation to FHP.

Table 1. Case Study Type of Purpose and Structure (Yin, 1993)

	Purpose of Case Study (single or multi-case)		
Type of Structure	Explanatory	Descriptive	Exploratory
1. Linear-analytic	X	X	X
2. Comparative	X	X	X
3. Chronological	X	X	X
4. Theory-building	X		X
5. Suspense	X		
6. Unsequenced		X	

Additional note to the reader: Although the Theater Army Medical Management Information System-Medical Supply (TAMMIS-MEDSUP) in a Combat Automated Support System-Medical (CASS-M delivery platform with the TAMMIS Customer Assistance Module (TCAM) is the primary medical logistics automated information management system supporting both garrison and theaters of operation in Afghanistan and Iraq, it is considered a legacy system and will not play a primary role in this study, however its functionalities and subsystem functionalities will be part of the qualitative analysis of this GMP.

Methods and Procedures

The methods and procedures of this GMP will tie in the sources necessary to support the research question. The design of this study involves analyzing and comparing functionalities of both systems (DMLSS and SAP) in the areas that are necessary to support a FLE with in the AMEDD. The areas of interest to be analyzed are based upon the selection criteria found in the Army CLVIII Supply Chain Intermediate Level Medical Supply Support Requirements study conducted by Gartner Consulting for USAMMCE. The criteria analyzed include functionality, strategic alignment, risk, affordability, ease of maintenance, and ease of integration (Appendix D).

The exploratory research supporting this study will examine various primary, secondary, and tertiary sources. The primary

sources will consist of government documents, white papers, regulations, and data drawn from government and civilian studies related to the research question. Secondary sources supporting this study will be based upon interpretations of primary sources drawn from articles, from magazines and newspapers. Tertiary sources will be drawn from sources found on the Internet. For purposes of research, information sources are hierarchical and the focal point of this study will draw from primary sources as they are without interpretation or opinion.

The primary objectives of this study will be to expand the reader's understanding of the functionalities of both SAP and DMLSS and how they both fit into the Army's enterprise architecture. It is my intent to present the facts related to the research question in a logical manner providing the reader with the methods, findings, and conclusions being explored in order for them to formulate their own answers to the research question.

Findings and Discussion

In order to gain a better understanding of logistics transformation of AMEDD logistics systems, it is important for the reader to familiarize themselves with the current medical logistics AIS and how it functions in the CLVIII supply chain. This study will provide an overview of current Army systems, to

include TAMMIS/TCAM, DMLSS, and the Theater Medical Information Program (TMIP).

Theater Army Medical Management Information System (TAMMIS):

The latest generation of TAMMIS is fielded as part of a very lightweight mobile server system known as the Combat Automated Support System Medical (CASS-M)(Figure 1). The current CASS-M is configured to support the mission requirements of medical logistics companies, forward distribution teams, division and regimental medical supply offices, combat support hospitals and other units that fall into the medical supply chain; however the original CASS-M was designed especially for medical logistics battalions with the concept of managing warehouses through the receiving, issue, and stock control of CLVIII medical supplies and equipment.

Figure 1. The CASS-M tactical server

What makes the CASS-M so unique from the earlier TAMMIS delivery platforms is that it has additional storage and power capabilities configured in a redundant array of independent disks (RAID) that have the functionality of keeping the system in continuous operation, utilizing multiple hard drives to store, recover, and retrieve data in case of possible hardware and or power failures. The BCU also contains the TAMMIS subsystems of TAMMIS MEDSUP, Local/Supplier Catalogs, and the TAMMIS Customer Assistance Module (TCAM).

TCAM was developed by USAMMCE in order to enhance the customer's medical logistics support capabilities (United States Army Medical Information and Technology Center, 2003). It is a Windows based operating system that is fielded with all CASS-Ms and can be easily loaded into individual laptops. With TCAM, depending on what function the user chooses, can transmit up to two file transfer protocols (FTPs) while performing their file transfer cycles. The first FTP permits the user to download local/supplier catalogs, substitution tables, the quality control alert file, and the daily status of ordered medical supplies. The user also has the option of downloading the long nomenclature update, however this is done initially once the program is loaded onto an operating system and then quarterly thereafter. Once the information is downloaded and TCAM files are updated, connectivity with the supplier ends and the user

can continue to operate TCAM at the system's normal processing speed (United States Army Medical Information and Technology Center, 2003).

Medical logisticians can then review supplier catalogs, process customer orders, manage inventory control, check stock status of customer orders, and printing various reports such as stock status, inventory count lists, materiel release orders, and basic financials (dollar amount of orders by DODAAC and supplemental address). Once the user completes the ordering process and is ready to order, they upload their orders to "send active orders to supplier" function where TCAM will open a second FTP and the requisitions will be sent to the supplier through the CASS-M's communications array, mobile subscriber equipment (MSE), Iridium and Very Small Aperture Terminal (VSAT) satellite communications. The communications array not only provides connectivity to the support peripherals, but is also the communications hub that links CASS-M to the medical supply chain.

Due to the overwhelming demand for secured and unsecured bandwidth placed on the U.S. Army Signal Corps and their inability to provide an adequate network for supporting the supply chain during OEF and OIF, medical logisticians scrambled to find COTS solutions that would establish a viable communications network between medical logistics forward

distribution teams (FDTs) and their customers. Iridium phones, which were previously used by medical logistics units on Bright Star deployments proved to be the short-term solution. Even though iridium phones provide a secure network, they can only transfer data at a rate between 2.5kbps and 9 kbps. This proved timely and difficult for medical logisticians who tried downloading large data files, such as local/supplier catalogs when they ran their daily TCAM cycles.

As the theater of operations matured, the original communications array on the CASS-M was replaced with VSAT. This conversion has increased the CASS-M's capabilities to where configured properly can set up a wide area network (WAN) and act as a primary information hub for customers that are part of the supply chain network (Figure 2). The VSAT gives CASS-M the capability to download information at an average rate of rate of 56 kbps and even at rates of over 120 kbps depending on the network configuration (Shirodkar, 2001). These speed capabilities can easily support the requirements placed on the system by TCAM and can also provide enough bandwidth to where deployed soldiers can stay in touch with family and friends via the Internet. CASS-M with VSAT communications also allows the 6th Medical Logistics Management Center (6th MLMC) to manage requisition and data flow to the interim theater database and feed data to the Joint Medical Asset Repository (JMAR) in order

to provide leaders with asset visibility on the status of CLVIII inter-theater inventories by running stock summary and due in/due out queries of medical logistics units (CLVIII distribution centers).

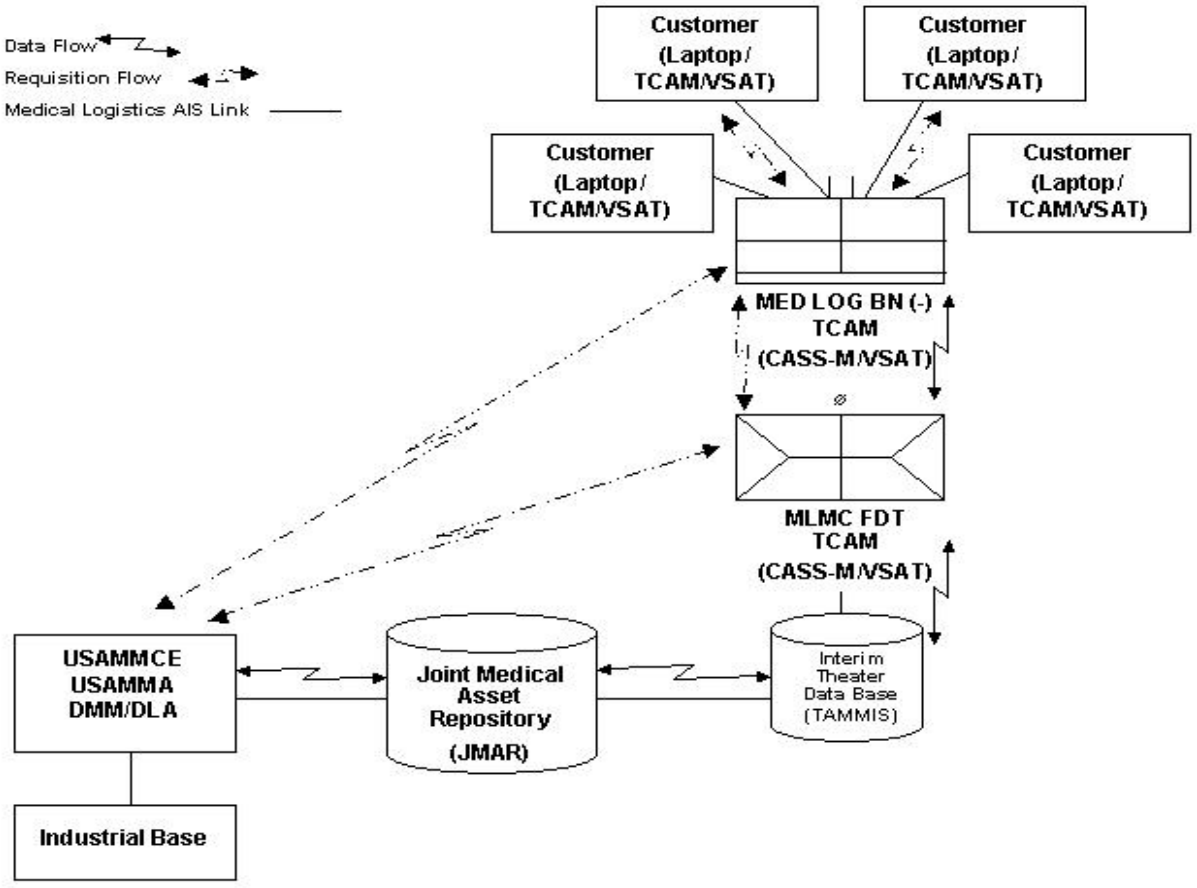

Figure 2. Conceptual overview of current medical logistics requisition and data flow requirements in a theater of operations using CASS-M with VSAT connectivity

VSATs receive and transmit medical logistics data by way of satellite to other VSATs in the network (Figure 3). CASS-M/VSAT link medical logistic units and customers to an AIS/commercial communications network giving them the ability to run daily TCAM cycles with their direct suppliers such as USAMMA, USAMMCE, and medical logistics battalions deployed in theater. The drawback to using a COTs communication system in a tactical environment is that VSAT currently operates on unsecured commercial bandwidths and currently does not meet security requirements outlined in the Federal Information Process Standards Publication (FIPS Pub) 140-1.

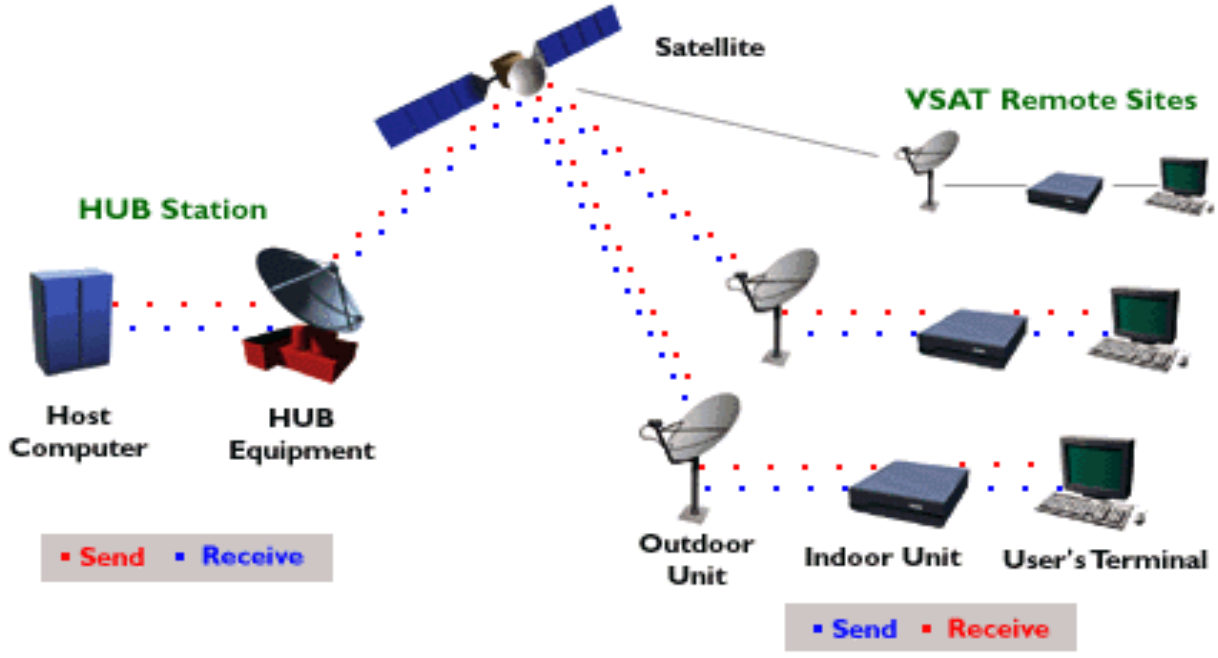

Figure 3. The linking of the theater medical supply chain through the use of VSAT satellite communications (Shirodkar, 2001)

Once CASS-M completes the TCAM cycle, VSAT disconnects from the network freeing up bandwidth back to the frequency pool for other CASS-Ms on the network to use. VSAT can provide the user with up to 99.5% uptime (system running time on the network) as compared to 80% uptime, (and significantly less when transmitting/receiving large data files) using iridium phones (Shirodkar, 2001).

CASS-M with TCAM/TAMMIS MEDSUP software package has acted as the backbone for CLVIII management, sustainment, and distribution over the last four years supporting the Global War on Terrorism (GWOT), and will continue to act as the intermediate level CLVIII manager for theater distribution through FY 09 (Kissane, 2004), or until DMLSS can be assimilated into the Global Combat Service Support System Army (GCSS-A) as an enterprise wide medical logistics system. TAMMIS will continue to live on as TCAM functions will be incorporated into the architecture of the DMLLS Customer Assistance Module as part of the assemblage management module of the TMIP.

Defense Medical Logistics Standard Support (DMLSS) and Medical Communications for Combat Casualty Care Theater Management Information Program (MC4 TMIP):

DMLSS is the first enterprise wide medical logistics system for the Army, Navy, Air Force, and Marines that standardizes medical logistics into one common medical logistics operating

system within the DoD. It replaces a myriad of systems to include TAMMIS, Medical Logistics Program Support (MEDLOG), Medical Inventory Control System (MICS), Army Medical Department Property Accounting System (AMEDDPAS), and the Biomedical and Facilities System (BIOFACS). With over 600 medical facilities and clinics in the military healthcare system, the purpose of DMLSS is to bring medical logistics under one umbrella with the objectives of:

- incorporating best business practices from the civilian health care materiels management sector
- reduce inventories at the wholesale and retail level
- reduce costs of medical supplies through competition
- reduce order ship times.

DMLSS is presently being fielded within the DoD and will be fielded to all Army MTFs by the end of FY 06. DMLSS provides users with a multitude of functions to include Customer Area Inventory Management (CAIM), Assemblage Management (AM), Facilities Management (FM), Stock Room Inventory Management (SRIM), Universal Data Repository (UDR), and Prime Vender (PV) management modules. DMLSS also provides users at all levels with:

- Business intelligence applications to assist effective decision making
- Medical product data exchange thru the Distribution and

Pricing Agreement (DAPA) Management System

- Readiness Management Applications (RMA) for contingency and deployment requirements
- Online ordering of laboratory, dental, pharmaceutical and medical/surgical (MEDSURG) supplies directly from vendors using the Electronic Catalog (ECAT)
- Total life cycle product management of CEEP and MEDCASE items thru the use of Equipment and Technology Management (E&TM).

CAIM is the module in DMLSS that enables the user to search for pharmaceutical or MEDSURG information, submit orders to suppliers, process shipments, pay invoices, and track expenditures.

The system has been developed into three releases. Release 1, which was launched in the mid 1990s provided DMLSS with facilities management (FM) and product price comparison functionalities. Release 2 was fielded in 2000 and included CAIM with hand held peripheral capabilities, web based customer support, and improved interface functions with prime vendor. Release 3 is currently being fielded and includes assemblage and advanced level inventory modules and also included is an equipment management and maintenance function that will eventually do away with the need for AMEDDPAS. DMLSS Release 3 will also start feeding medical logistics requisitioning and

financial data into JMAR creating a centralized repository supporting its business intelligence and asset visibility functions for a more streamlined medical supply chain. The current plan is to field DMLSS at all MTFs at the TDA level while maintaining TAMMIS operating systems down at the tactical level until the program office for MC4 completes the testing and fielding of TMIP.

MC4 TMIP is a joint venture sponsored by Health Affairs and DoD that is comprised of COTs/GOTs software, communications, and systems packages, which provide a theater level network centric solution combining sustaining base activities with primary healthcare delivery, planning, and logistics platforms into a single integrated medical information system (Figure 4) operations. TMIP is a system that supports both the warfighter and the military healthcare system by providing medical software applications that enables Level I thru III echelons of care to:

- Effectively manage a patient’s electronic medical record to include patient movement, surveillance, accountability, and immunizations tracking
- Effectively manage, monitor, and report medical logistics to include blood products
- Carry out effective medical command and control, planning, and readiness reporting
- Access a fully digital medical reference library

This type of information dominance will give the commander a medical readiness decision capability never heard of before.

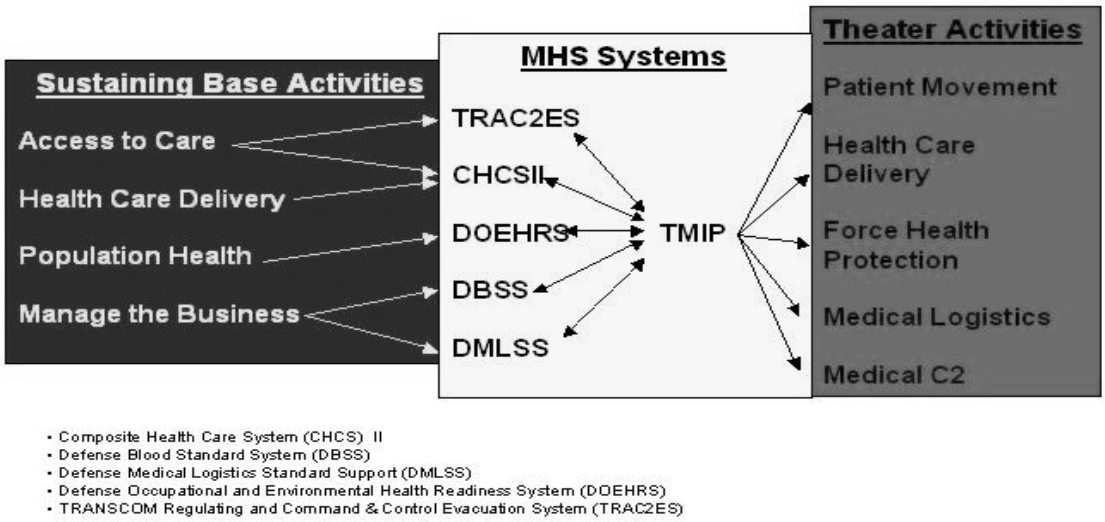

Figure 4. Medical and Command and Control information systems that make up MC4 TMIP

According to MC4 PMO (2004), TMIP will provide a seamless link both vertically and horizontally at all echelons of medical care and logistics support. TMIP technology will be released incrementally in a series of blocks based on user requirements and operating system/software upgrades.

Currently, it takes six separate automated information systems to effectively track patients with their medical records along the Central Command (CENTCOM)/CONUS casualty evacuation pipeline. These systems are the GWOT Database, Patient Accounting and Reporting Realtime Tracking System (PARRTS),

Medical Occupational Data System (MODS), Composite Healthcare System (CHCS), TRANSCOM Regulating and Command and Control Evaluation System (TRAC2ES), and the Electronic Military Personnel Office (e-MILPO) system. The objective of MC4 is to reduce the use of redundant proprietary systems and utilize primary medical information and personnel tracking operating systems of DMLSS, CHCSII, TRAC2ES, PARRTS, the Composite Healthcare System II-Theater (CHCSII-T), the Defense Blood Standard System (DBSS), and the Defense Occupational and Environmental Health Readiness System (DOEHRS) using the latest COTS laptops, hand held peripherals, and servers (Appendix E)(Bonner, 2004). These system are integrated into a theater medical information delivery system that can stream line casualty flow and the medical supply chain, creating an information network that links Levels I thru III medical units with Level IV and V medical facilities in the United States and Europe.

Levels I thru III echelons of care, such as forward surgical teams, battalion aid stations, forward and area support medical companies, medical logistics companies, and combat surgical hospitals will use hand held computers and laptops loaded with the TMIP operating systems and software packages (Figure 5).

TMIP will be networked and managed by tactical servers and

communications packages, which are linked to an interim theater database that transfers data and electronic medical information to JMAR, the Clinical Data Repository (CDR), and the Global Combat Service Support Army (GCSS-A). An example of one of the interim theater databases currently being used is the Joint Medical Workstation (JMeWS), which provides the user with access to collected data that shows medical unit location, medical equipment, logistics, and blood status. It also can show the location of a physician by specialty, and can provide medical surveillance to the user by analyzing collected patient encounter data to alert of any spikes related to any specific diseases or non battle injuries (Deployment Link, 2004).

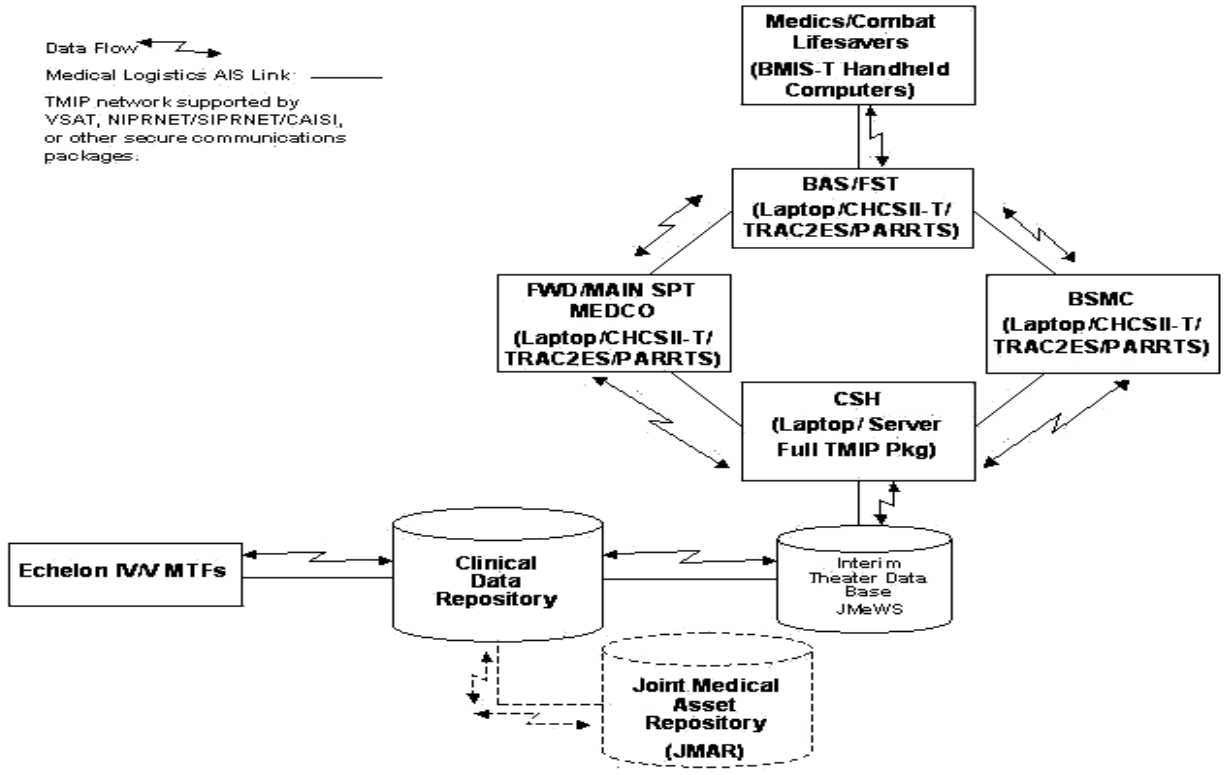

Figure 5. Electronic medical record data flow under TMIP

Medical logisticians using TMIP will manage the CLVIII supply chain using the Defense Medical Logistics Standard Support Assemblage Management Stand Alone (DMLSS-AMSA) module (Figure 6), which operates under the same principles as TAMMIS, with the exception that DMLSS-AMSA enables the user to build and manage medical assemblages. The latest version of TCAM has the capability of interfacing with DMLSS-AMSA, however the DMLSS Customer Assistance Module (DCAM) is under development and will have similar relationship functionalities as TCAM has with TAMMIS. DMLSS-AMSA is also under stages of development and testing as units supporting OIF and OEF are using TAMMIS/TCAM with no foreseeable changes in the future.

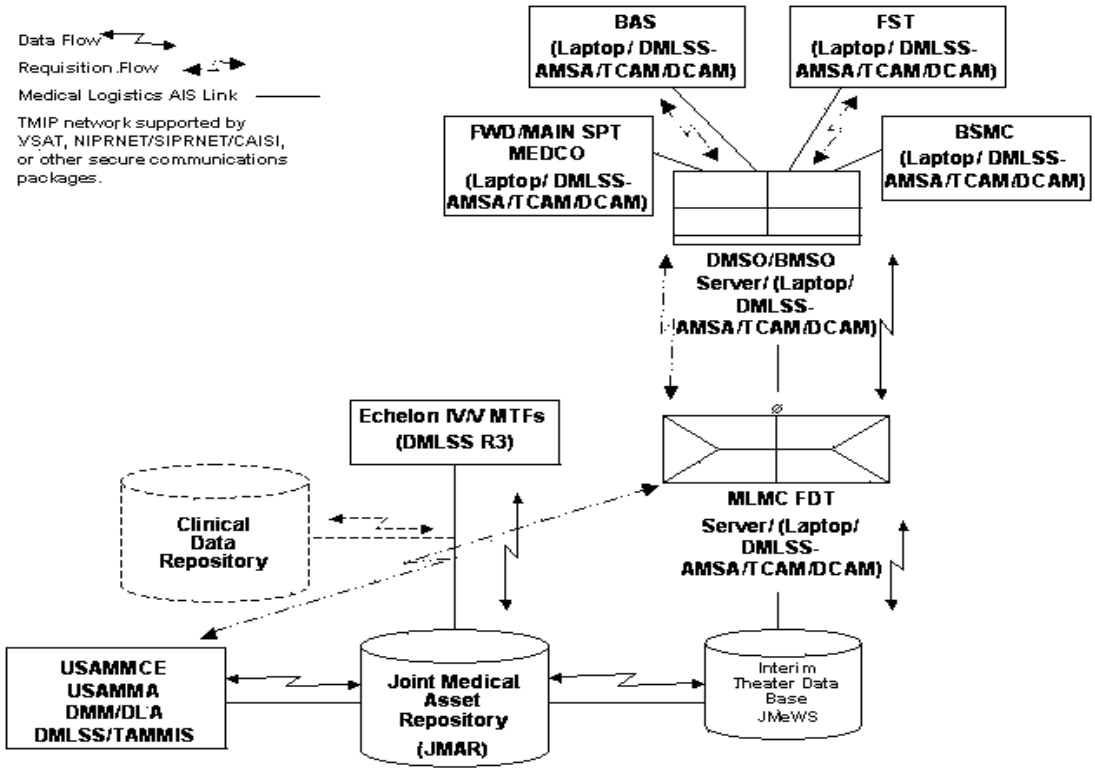

Figure 6. CLVIII data and requisition flow under TMIP

An important issue that the reader needs to consider and understand is that the operating systems that make up TMIP are proprietary systems. These systems are not a function of one another, they do not share data nor do they share a common operating environment with each other than falling under the TMIP umbrella. For example, when a battalion surgeon inputs patient data requiring a particular pharmaceutical or MEDSURG item into CHCS II-T, that information is not shared with DMLSS/DMLSS AMSA causing the medical logistician to ineffectively forecast, respond, or order any shortages that a medical unit's sets, kits, and outfits (SKOs) may incur until items have reached their reorder points or until supported units request the medical items. DMLSS AMSA data is fed into JMAR, while CHCSII-T and like data are fed into the CDR. Successful deployment of TMIP in a theater of operations depends heavily on the strategic placement of servers/data bases in an already strained communications network. As identified in a recent medical materiel readiness assessment by LMI (2003), it was determined that separate and individual databases, which supported the medical supply chain during OIF delayed continuous ordering of CLVIII. TMIP and CASS-M feed logistics data into proprietary data bases and are not linked to an enterprise wide database. It is important to ensure point-to-point and point to multi-point communications between servers when setting up the

TMIP network. As with CASS-M the TMIP operating environment is laden with servers as seen in Figure 7, which illustrates the disposition of servers that manage only DMLSS data. Medical Logistics Chiefs form the tri services have discussed the idea of incorporating regional servers supporting installation medical activities instead of having servers at each medical facility. This “hub and spoke” concept of networking medical logistics AIS and databases reduces the number of servers on the network.

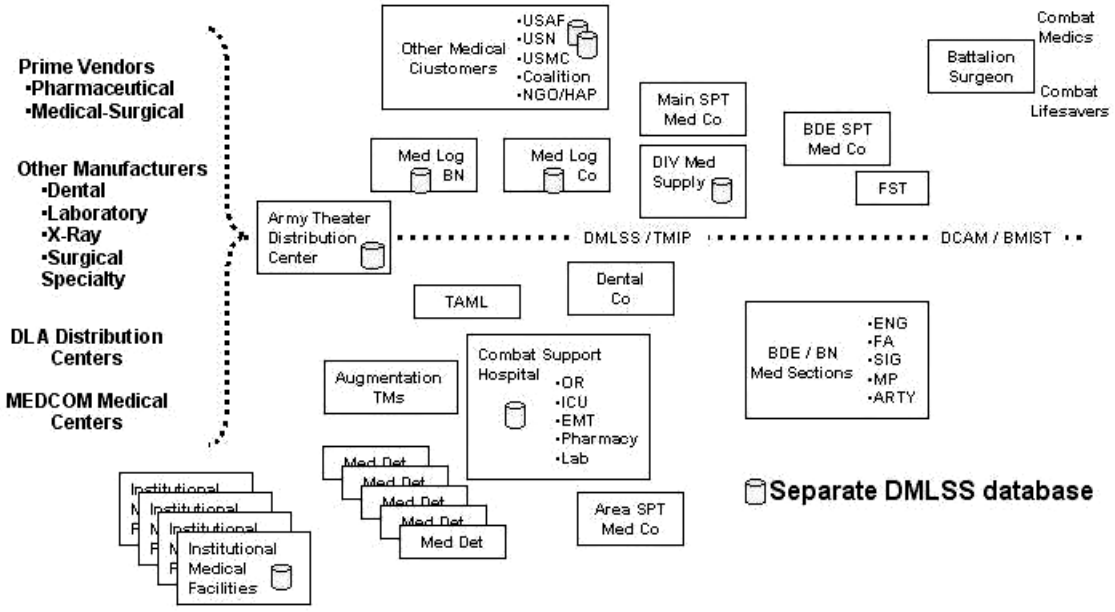

Figure 7. TMIP/DMLSS server distribution in a CLVIII supply chain (Kissane, 2004)

Keeping soldiers alive during the entire evacuation process (Battalion Aid Station (BAS) to CONUS) is dependent on the successful transference and sharing of medical data and

information across the entire information grid of the medical support/supply chain. This is achieved through the networking of medical information systems and creating operating systems that are interoperable and share a common operating environment both jointly and within the AMEDD community. This endeavor is going to require a mass of communications and information systems capability, and an enterprise architecture designed by medical logisticians who understand the concepts of business process reengineering (BPR).

According to Epicor (2003), BPR is “the analysis and design of workflows and processes within and between organizations.” The focus of BPR is the fundamental improvement of processes and not on incremental change or gradual improvement. Medical logisticians developing the medical logistics architecture for FLE need to understand that BPR also focuses on processes that are designed around desired outcomes rather than tasks (Epicor, 2003). Epicor (2003) further emphasizes that BPR be modeled around the following recommended steps:

- Develop and define an organizational vision and operating objectives.
- Identify business processes with the most impact to the organization to be redesigned into the new architecture.
- Have available detailed documentation of existing processes

and performance metrics that support them.

- Identify AIS and other technologies that influence the process design.
- Incorporate AIS and other technologies with the new business processes into the architecture and then implement it.

An enterprise architecture developed with BPR in mind is one that provides an almost immediate return on investment like the joining of similar applications, systems, and business practices into a single enterprise.

In order to gain an advantage the AMEDD is looking ahead and envisioning new ways of thinking of how business practices and process can be implemented outside of standard practices or "outside the box." The AMEDD, DLA, and the DoD are looking to transition from a client/server network environment to one that is more of an integrated web-enabled application. This network will make up the foundation of FLE that will link the supply chain from the combatant commands or the logistics front end (tactical), with supply chain operations of DoD (operational), to the commercial support of the industrial base or back end (strategic), thereby combining logistics into one common operating environment (LMI, 2003).

The AMEDD's medical logistics community is determining if DMLSS or a current ERP vendor such as SAP is going to be the

network centric solution that will make the medical supply chain part of the DoD's vision for FLE. In the spring of 2003 the Army's Medical Research and Materiel Command (MRMC) in conjunction with the research group Gartner Inc., sponsored a study to evaluate system modernization alternatives for the AMEDD. Designated representatives from the AMEDD Center & School, USAMITC, MRMC, LMI, and OTSG were brought together to form the Medical Logistics Proponent Subcommittee (MLPS) to determine the evaluation criteria that supported the study and assigned weighted percentages to the criteria categories that were used to evaluate DMLSS and SAP. The weighted percentages were not based on any established metrics but rather were agreed upon by the members of the subcommittee based on those categories that had the most influence in determining outcomes. The categories are outlined in Table 2 and allowed for a comparison analysis of DMLSS and SAP based on these categories as the evaluation criteria.

The comparison of the two systems was based on the scoring criteria established in Table 3. The purpose of the study was to evaluate and determine whether DMLSS or SAP was best suited to support the functional requirements of what Gartner refers to as intermediate level medical logistics units and successfully align itself with other systems within the logistics enterprise such as DLA's Business Systems Modernization (BSM), USAMMA's

URL, GCSS-A, and other systems supporting the military healthcare system.

Table 2. Evaluation criteria of MRMC's/Gartner's study of the Army CLVIII supply chain intermediate level supply support requirements (Gartner, Inc., 2003).

Criteria Category	Definition	Percentage Allocated
Functionality	Measures the alternative's ability to satisfy Class VIII intermediate Supply Chain requirements.	25
Affordability	Describes the expected cost to build or implement, and total cost of ownership.	20
Maintainability	Assesses the ease of maintaining the alternative	5
Ease of Integration	Measures the expected effect an alternative will have on the organization, its people and the processes included in the scope of SCM	5
Strategic Alignment	Evaluates how well the alternative aligns with other services, DLA, MHS (Military Health System), JCIDS (Joint Capability Integration Documentation System), POM the Big Army, and with customers	25
Risks	Assesses the potential for not achieving overall program objectives in several areas including but not limited to business processes, organizational, people, technology, schedule and financial.	20

Gartner, Inc. based their research criteria and common functionality requirements on extensive interviews and site visits to the various medical logistics units and subject matter experts throughout the Army. The focus of the interviews were centered on OTSG DCSLOG and the theater Single Integrated

Medical Logistics Managers (SIMLMs) USAMMCE, 6th MLMC, USAMMA, and the 16th Medical Logistics Battalion. When the site visits were completed and the functional requirements were compiled and numerical values were added, the results indicated that both systems met a considerable amount of requirements and had advantages over the other in certain areas. The results

Table 3. Scoring criteria of the Army CLVIII supply chain intermediate level medical supply support requirements study (Gartner, Inc., 2003).

Score	Assessment
1	- Does not meet criteria - Unreasonable effort needed to meet criteria - May degrade current capability
3	- Begins to meet criteria - Would require high level of effort to meet criteria - Maintains current capability
5	- Substantially meets criteria - Would require medium level of effort to meet criteria - Some improvement over current capability
7	- Fully meets criteria - Would require low level of effort to meet criteria - Moderate improvement over current capability
9	- Exceeds criteria - Superior to other alternatives in meeting criteria - Significant improvement over current capability

indicated that DMLSS had a clear advantage of interfacing as the applications that fall under DMLSS have already been tested and are currently being used in the DoD. However, SAP showed clear advantages in the areas of distribution and transportation, and best practices as both these functionalities are built into the

SAP/ERP architecture providing integrated data flow and total asset visibility as part of their system (Gartner, Inc., 2003). While both systems substantially meet requirements, SAP scored 8.11 while DMLSS scored 6.85. Total Asset Visibility (TAV) to include In Transit Visibility (ITV) has proven to be a serious shortfall in the medical supply chain as the Army is seeking ways to establish information dominance. The DMLSS program office is developing BPR strategies to transform DMLSS into an ERP system and is incorporating transportation TAV functionalities into the system.

Strategic alignment can be defined as to how much interoperability SAP or DMLSS has with the enterprise systems of DLA's BSM, USAMMA'S URL, and the Army's GCSS-A. Even though BSM, URL, and GCSS-A are or will be products of SAP, it doesn't necessarily mean that these systems will be built around the same code to where they share a common operating environment. Successful alignment depends upon incorporating the alignment strategies of these logistics systems into the design of each system's enterprise architecture. The Gartner study showed where DMLSS has a slight advantage over SAP with 3.94 to 3.79, however both systems still require a degree of improvement to satisfy strategic alignment criteria. The advantage that DMLSS has over SAP in this category is that DMLSS is a fully funded program that is already incorporated into the military's

healthcare system.

The category of affordability involves the total life cycle systems management of an ERP system and the total cost of ownership (TCO) over a 10-year period. Gartner (2003) indicated that the TCO of a potential ERP system included the following:

- Product licensure
- Maintenance fees such as software upgrades and security
- Customization related to software specifically designed to produce functionality of an ERP system in case requirements are not met
- Internal and external implementation costs that involve the installation and configuring of systems
- Costs associated with training and integrating the system into military to include organizations that are not part of the military
- Cost of updating and adding revisions to software in order to keep systems in line with current business practices

Based on cost estimates and the 10 year total life cycle product management of both systems, the study demonstrates that DMLSS has a distinct advantage over a SAP system in that it has an approved funding stream of approximately $30 million annually thru FY09 with lower implementation costs. DMLSS substantially meets requirements with a score of 5 over SAP's score of 3.

Gartner's evaluation of risk was based on 5 separate risk

factors based on:

- Financial risks that may possibly affect the project budget
- Organizational risks that could effect performance or resistance to change
- Business process risks affects change and an organization's ability to achieve change
- People risks that affect scheduling and timing, and having the right people to support development of a new system
- Technical risk involving failures implementing the desired system

Gartner (2003) evaluated each system based on performance, cost, and schedule against the risk factors. The lower the score the more likely risk would be involved in the introduction of a new system. Since DMLSS is not an ERP system it may take enterprise application integration software not yet developed or written into the architecture to effectively initiate system transformation. SAP on the other hand works most effective when it is implemented in a centralized organization. With the Army being an organization that is more decentralized, it may take the complicated design and development of software to implement a SAP type system that could prove to be too costly. Gartner (2003) further found in its study that SAP is at a greater risk due to a lack of committed funding as seen with USAMMA'S URL assemblage building project. DMLSS is not without its share of

risks, because of its fielding commitments to the other services, there may be potential conflicts with the implementation of the Army's logistics enterprise. Even though there would be a medium level of effort to meet risk criteria, DMLSS scored a 5 as compared to SAP whose score of 3 would take a high level of effort to meet criteria requirements.

Ease of integration based on the study is measured on how well either DMLSS or SAP would perform once implemented into the logistics enterprise (Gartner, Inc., 2003). Ease of integration was evaluated on the following:

- The direct impact system transformation would have on the Army's CLVIII supply chain to include end to end distribution and prime vendor
- The amount of BPR it would take to implement transformation
- The amount of changes involved supporting the new system and business processes

DMLSS holds the advantage in ease of integration in that DMLSS systems and applications are already built and are currently supporting the CLVIII supply chain. According to the Gartner (2003) there is already a continuity of best business practices and familiar terminology with DMLSS. Once again, with a score of 5, DMLSS substantially meets the criteria for ease of integration as compared to SAP's score of 3.

Maintainability is best described as the degree of

complexity and flexibility in maintaining medical logistics AIS throughout its life cycle. DMLSS and SAP were evaluated in this category based on:

- The level of complexity in changing the system as business practices change
- The flexibility in which a system's code can be modified to change the system during the course of its life cycle
- The response time required from the time changes are requested to when they are implemented

Since DMLSS is a GOTS system, its code is controlled by the program management office thereby allowing flexibility when modifications need to be made to DMLSS. However, it scored a 3 whereas SAP scored a 5 as it was found to be more cost effective given that it is already an ERP solution.

The concept of ERP is relatively new to the military and the above study is the only one that has been conducted for the AMEDD. However, SAP has been used in the manufacturing and production sectors of industry for the last 30 years with much success and even greater returns on investment. The typical SAP user on average has reported a 20% reduction in inventory and higher inventory turnover (Technology Evaluation.Com, 2004). Higher inventory turnover indicates better liquidity and stocking exactly what the customer needs. Implementing an enterprise wide system such as SAP has shown material cost

reductions of 5% or better (Technology Evaluation.Com, 2004). ERP systems can project material requirements and provide vendor performance statistics giving organizations better visibility of future requirements. Major pharmaceutical companies such as the Kimberly-Clark Corporation and Merck have reported that by incorporating SAP into their AIS infrastructure by storing and synchronizing data in a central location, has allowed key leaders within these organizations to quickly acquire data about the organization's inventory, customer histories, and product distribution. They can share this information globally with each other and attain responses in minutes in what used to take hours or days. SAP is not without its failures though. Hershey Foods Corporation had an SAP implementation failure due to cost overruns and poor ERP architecture, costing them hundreds of millions of dollars in losses.

Conclusion

The focal point of this GMP was to provide the reader with accurate information necessary to illustrate which medical logistics information system, DMLSS or SAP, was better suited to act as the transformation agent to align the AMEDD with the Single Army Logistics Enterprise. This was accomplished by first introducing the current medical logistics AIS. Additionally, the purpose of this GMP was to provide the reader with an understanding of the following concepts:

- Army Transformation and the Future Logistics Enterprise
- Focused Logistics under Global Force Health Protection with and understanding of having the right supplies and equipment, medical maintenance, blood storage and distribution, and optical fabrication to the U.S. military and their families at the right place, at the right time, and in the right quantities
- Enterprise Resource Planning and the transformation from proprietary operating systems to a network centric common operating environment
- Data warehousing and repositories, and the importance of accessible shared data and total asset visibility
- The importance of the design and development of an ERP architectural blueprint prior to system development and implementation
- Current logistics AIS, communications packages, and their effect on the CLVIII supply chain

The results of the findings conclude that DMLSS currently offers a more practical solution for logistics transformation than SAP. In the area of functionality, SAP outscored DMLSS because the distribution and management functionalities already exist in SAP. In the area of strategic alignment, DMLSS showed a distinct advantage to SAP because this system is already incorporated into the medical supply chain. In regards to

affordability, DMLSS met requirements better than SAP again because it is already funded through the Program Objective Memorandum (POM). When evaluating risk factors for each system, SAP lagged behind DMLSS mainly due to the work effort that has already been dedicated to implementing DMLSS into MHS. For the same reason, DMLSS holds the advantage over SAP for ease of integration as well. However, the study demonstrated that SAP better met maintainability requirements than DMLSS because it already is an ERP solution. The most notable advantage DMLSS has over SAP is that it is a system already being used in MHS and has the capability of having its code rewritten to adopt ERP business processes in order to align itself with logistics transformation. Although DMLSS is not an ERP system, it needs to have an enterprise architecture designed to be the bridge, connecting the current operating environment to a future integrated logistics solution.

Both these systems when considered for the AMEDD logistics enterprise architecture are expensive endeavors and are not without challenges. To implement a SAP solution in the near future would create another layer of infrastructure to an already extremely layered medical logistics enterprise and would create new challenges that would require making another autonomous system interoperable with other systems already in place. DMLSS is not an ERP system and will require expensive

enterprise application integration software to attempt to make it one. The MLPS should consider what type of implementation strategy to integrate DMLSS as an ERP logistics solution and provide executive oversight in the design of the enterprise architecture. SAP works very well in organizations with a centralized architecture and has packaged software ready to support it. Consequently, the AMEDD is a very decentralized organization where at any given MTF there are multiple stand-alone systems that manage redundant medical data and information that need to share a common operating environment with medical logistics. SAP or another ERP vender is going to have to redesign their software to fit the AMEDD's enterprise architecture. The full implementation of an enterprise wide medical logistic system will span the course of years before it can be fully appreciated as a medical logistics system that will support global force health protection under the objective force. Further studies need to be conducted to determine what DMLSS functionalities can be integrated into an enterprise architecture.

While some organizations within industry have had success with SAP, it still may not be the answer for every type of logistics function as evidenced by Hershey Foods Corporation. It's a very expensive enterprise to undertake with great risks involved. Additional studies may prove that SAP is the network

centric solution for the AMEDD, however DMLSS is the more practical solution because it is already managing parts of the medical supply chain.

Recommendations

Training is almost paramount to the successful integration of DMLSS at all levels of the medical supply chain. "Just in time training" is at best a fallacy. No longer can the medical logistics community rely on a small pool of systems experts to influence corporate decisions. It takes trained medical logisticians to make CASS-M and DMLSS work and keep the supply chain flowing. If we're going to convert DMLSS into an ERP solution and eventually transition towards an ERP platform such as SAP, then we need to look towards the civilian sector at the following points in order to develop a strategy to train medical logisticians on future ERP systems:

- Educational equivalent/level of a typical ERP end user
- Hours of training required at the user, managerial, and executive levels
- Training the trainer
- Cost of training over the entire life cycle of the system including distance learning and web based initiatives
- Effects on TCO

Training begins at the AMEDD Center & School and systems training tasks for both 91J Medical Logistics Specialists and

70K Medical Logisticians need to be identified in close proximity to the designing of the ERP architecture. Tasks can be identified and then decided upon at a task selection board chaired by seasoned medical logisticians.

In a recent meeting of the Medical Logistics Chiefs Strategic Planning Work Group in February 2004, the consensus was to re-architect DMLSS into a joint medical logistics enterprise architecture. ERP can be loosely defined as the combining of an organization's business processes into a single enterprise. This same concept can be utilized to restructure the Logistics Management Branch of the AMEDD Center & School into a "Center of Excellence" for medical logistics AIS training and possibly for all medical logistics training.

AIS training must be continuous as it is a perishable skill. In a Joint Operations Concepts Memorandum to the Army G-3 and G-8 in November of 2003, TSG wrote that the AMEDD is the "principal enabler to Global FHP" and continued to write that FHP relies upon "medical logistics that is precisely synchronized with respect to the right type of materiel being delivered at the right place and at the right time. Failure is measured by morbidity, mortality, and disability—not customer wait time or demand satisfaction." We owe it to our soldiers and families to be highly trained on the best systems available in order to provide seamless medical logistics support.

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Appendix A

Key Acronyms

AIS	automated information system
AM	Assemblage Management
AMEDD	Army Medical Department
BCU	basic computing unit
BPR	Business Process Reengineering
CAIM	Customer Area Inventory Management
CASS-M	Combat Automated Support System-Medical
CENTCOM	Central Command
CHCS	Composite Healthcare System
CHCSII-T	Tactical
CONUS	Continental United States
COTS	computer off the shelf
DCAM	DMLSS Customer Assistance Module
DAPA	Distribution and Pricing Agreement
DODAAC	Department of Defense Account Acquisition Code
DISMS	Defense Integrated Subsistence Management System
DLA	Defense Logistics Agency
DMLSS	Defense Medical Logistics Standard Support
DMLSS AMSA	DMLSS Assemblage Management Stand Alone
DoD	Department of Defense
DPACS	Defense Pre-award Contracting System
DPSC	Defense Personnel Support Center

ERP	enterprise resource planning
e-MILPO	Electronic Military Personnel System
FDT	forward distribution teams
FHP	Force Health Protection
FIPS	Federal Information Process Standards
FLE	Future Logistics Enterprise
FTP	file transfer protocol
GOTS	government off the shelf
GWOT	Global War on Terrorism
GCSS-A	Global Combat Service Support System-Army
IBM	International Business Machine
ITV	In Transit Visibility
JIM	joint, inter-agency, multi-national
JMAR	Joint Medical Asset Repository
JMeWS	Joint Medical Work Station
MC4	Medical Communications for Combat Casualty Care
MODS	Medical Occupational Data System
MHS	military health system
MKPD	monitor/keyboard/pointing device
MTF	medical treatment facility
OEF	Operation Enduring Freedom
OIF	Operation Iraqi Freedom
PAARTS	Patient Accounting and Reporting Realtime Tracking System

PV	Prime Vendor
POM	Program Objective Memorandum
RAID	redundant array of independent disks
ROI	Return on Investment
SALE	Single Army Logistics Enterprise
SAMMS	Standard Material Management System
SAP	Systems, Applications, and Products in Data Processing
SKOs	Sets, Kits, and Outfits
SPEDE	SAMMS Procurement by Electronic Data Exchange
TAMMIS	Theater Army Medical Logistics Management Information System
TAMMIS-MEDSUP	Theater Army Medical Logistics Management Information System-Medical Supply
TAV	Total Asset Visibility
TCAM	TAMMIS Customer Assistance Module
TCO	Total Cost of Ownership
TMIP	Theater Medical Information Program
TRANSCOM	Transportation Command
TRAC2ES	TRANSCOM Regulating and Command and Control Evaluating System
TSG	The Surgeon General
UDR	Universal Data Repository
URL	USAMMA Revolution in Logistics
USAMITC	United States Army Medical Information and

	Technology Center
USAMMA	United States Army Medical Materiel Management Agency
USAMMCE	United States Army Medical Materiel Management Agency Europe
VSAT	Very Small Aperture Terminal
WAN	Wide Area Network

Appendix B

Key Definitions

Enterprise Resource Planning (ERP): Formerly referred to as Materials Requirements Planning (MRP), is used to describe multiple application software packages designed to support and integrate multiple functions. ERP systems can include software packages for financial accounting, asset and materials management (warehousing), transportation, manufacturing and production, human resources management, purchasing, sales, and distribution operations. By fully integrating business processes and information into a single enterprise, ERP if implemented properly, gives organizations the ability to standardize their business practices and run their processes (i.e., supply chains) more efficiently. The next generation ERP solution is ERPII, which allows organizations to collaboratively share business intelligence via the web, in to gain competitive advantage in global markets.

Focused Logistics: Part of the Army transformation process that provides the warfighter with the right supplies, equipment, and support (to include medical) at the right place, at the right time, and in the right quantities across the broad continuum of military operations. This will be accomplished by creating a fully integrated supply chain with an enterprise wide, web-based information system forming a common logistics-

operating environment that is joint, inter-agency, and multinational linking commanders with the logistician by providing them with total asset visibility.

Full Spectrum Dominance: The over whelming combination of combat, logistics, and information superiority creating a state of imbalance for enemy opposition. This state of imbalance gives leaders the ability to make decisions in order to shape and or react to the situation for them to successfully accomplish the mission.

Future Logistics Enterprise: FLE is based on best business practices and strategies from both DoD and industry, it is a set of six initiatives (Total Life Cycle Systems Management, End to End Distribution, Enterprise Integration, Condition-Based Maintenance, Depot Maintenance Partnerships, and Executive Agents) that will be used to transform logistics capabilities from a cumbersome depot based supply chain to a more efficient, leaner, distribution-based supply chain.

Iridium Communications: It is a manufactures name given to a small hand held satellite telephone that has the capability to communicate in remote locations. It has a data transfer rate of approximately 2.5kbps with a compressed data transfer rate of approximately 10kbps. This low data transfer rate proved to be a disadvantage for deployed medical logisticians who were required to download large data files onto their AIS.

Network Centric Warfare: A future concept of gaining full spectrum dominance by achieving information/decision superiority thru the creation of a global information grid, which will allow the collection and processing of data into useful information that can be managed and disseminated to warfighting and support entities over secured networks.

Very Small Aperture Terminal (VSAT): VSAT is a device commonly referred to as an earth station that is used to receive satellite transmissions. The "very small" part of the VSAT acronym refers to the size of the VSAT dish antenna. The antenna, including an attached low-noise blocker (LNB), receives satellite signals and the transmitter portion of the disk sends signals. These components make up what is known as the outdoor unit (ODU), that is one of the two components of a VSAT earth station. The second component of VSAT is the indoor unit (IDU). The IDU is a small satellite modem with receiver and transmitter boards, and an interface to communicate with the user's AIS such as CASS-M. The advantage of a VSAT over a land based network, is a VSAT is not limited by amount of available cable for connectivity. VSAT can be placed anywhere as long as it has an unobstructed view of the satellite. VSATs are capable of sending and receiving data, video, and audio in excess of 120kbps regardless of their distance from the hub station.

Appendix C

Executive Overview

Gartner, Inc.

Gartner, Inc. was founded in 1979 as a research and advisory firm that provides its clients with research and consulting services, measurements (decision tools), executive programs and symposiums that introduce the latest industry trends and business practices in information technology.

Gartner research and consulting services employs over 1,000 technology and research analysts, and consultants worldwide who comprehensively conduct research on information technology solutions currently being used in industry. Their specialties range from supply chain management to e-business strategies. Gartner's attraction among large organizations is that they are not a technology vendor, but provide objective results and recommendations based upon a wide-ranging body of global research.

In addition to consulting, Gartner offers access in the form of dashboard services to one of the world's largest databases in benchmarking. These services can provide customers with measurement decision tools relating to total cost of ownership, returns on investment, and impacts of innovation on certain technologies.

Rockford Consulting Group

Rockford Consulting Group is an organization that specializes in the facilitation, development, and execution of business practices and strategies that enable clients to reduce costs, product development time, delivery and cycle times, and to streamline organizational structure and information flow. They also assist clients in the development and procurement of information systems related to manufacturing, distribution, logistics, and financial management.

Rockford Consulting Group employs over 1,000 technology specialists worldwide and provides consulting services to clients in the areas of distribution operations, procurement, manufacturing, product and strategy development, and market research.

SAP

Based in Germany and founded by former members of IBM in 1972, SAP is a registered name that means Systems, Applications, and Products in Data Processing. SAP is the leading ERP vendor who was the first to integrate multiple business processes into one single software application. This revolutionary concept in process integration has enabled SAP to be the third largest software manufacturer in the world and provide service to more than half the world’s Fortune 500 companies. SAP employs approximately 27,000 personnel world-wide serving more than

17,000 clients.

SAP means of delivery for their ERP software is a client server application known as SAP R3 and has evolved towards a web enabled architecture where customers can access SAP R3 and other ERP applications utilizing the Internet.

In order to meet the requirements and timelines for transformation the U.S. Army has hired SAP to design and manufacture a fully integrated software suite in support of the Single Army Logistics Enterprise.

Appendix D

Comparison of AIS Requirements

Army Class VIII Supply Chain
Intermediate Level Medical Supply Requirements

Scoring Guide:
'2' = Fully Satisfy
'1' = Partially Satisfy
'0' = No Satisfy
'?' = Do Not Know

		DMLSS	SAP	General Comments	Reviewer Comments on DMLSS	DMLSS Response	SAP Comments / Internal Gartner SCM Reference Number	SAP Response
Section 1.0	**Management Requirements**							
1.0.1	Support Single Integrated Medical Logistics Management (SIMLM)			Changed from requirement to a heading. No Scoring needed.	Requires DMLSS to become a modular application.	What requires a SIMLM application to be modular?	1.3.5.6.1.116	
1.0.2	**Support** to commercially-based business	2	2					
1.0.3	Integrate multiple acquisition tools	2	2					
1.0.4	Single database supporting multiple sources of supply **(Commercial partner AND DoD)**	2	2				2.2.2	
1.0.5	Enterprise-wide Authoritative Catalog	2	2				1.2.3.2.1.1.86	
1.0.6	Create a national level database for Class VIII product and source of supply catalog information that is kept current daily. **(Note. Source of supply is broader than just suppliers - Input should include the depots.)**	2	2				1.2.3.2.1.1.86	
1.0.7	Integrate DLA national commodity management with Army theater distribution capabilities.	2	2				1.3.5.4	
1.0.8	Improve catalog accuracy based on actual sales.	1	2		Actual receipts is currently used, instead of sales. NOTE: It could be argued that actual receipts are used because they are a MORE accurate way of improving catalog accuracy.	1. Should be a 2 - DMLSS uses both trading partner feedback and receipt processes to allow update of catalog data in addition to the central feed of data through the UDR. 2. Receipts is more appropriate, since there is a long term storage requirement on some items.	1.3.1.1.1.2	
1.0.9	Catalog and substitution	2	2				1.3.1.3.1.162	
1.0.9.a	Catalog should allow fractional Unit of Issue (UOI).	1	2	Moved from the Optical Fabrication (as discussed in Workshop)		This is One to Many functionality. I'd actual question where this is a DC level business practice.	1.1.2.1.78	
1.0.9.b	Need process to handle new item request	2	2	Moved from the Customer Support section (as discussed in Workshop)				
1.0.9.c	Support pictures (e.g. item catalog display)	2	2		Pictures are provided through UDR functionality.			

1.0.10	Utilize web-based technologies **(= persistent online connection)** to extend enterprise system to tactical medical logistics units. **The system should also allow off-line processing and synchronization.**	2	2				2.2.3
1.0.11	'Dummy' down the client to reduce demand on field operations.	1	2		Will still have to rely on TCAM interface until planned major upgrade in 2005 to provide a tailored solution for "very small sites" (i.e., "dummied down" functionality)	I don't understand the inference to TCAM or to a 2005 upgrade.	2.2.3
1.0.12	Enterprise Total Asset Visibility	1	2		Through JMAR, data warehouse using separate database, not integrated enterprise architecture	I don't understand this one either. An ERP, unless integrated at all levels, including MTF doesn't provide enterprise visibility either. This requirement seems to talk to a single enterprise wide database which captures both historical and working transactional data.	1.3.3.31
1.0.13	Enterprise inventory management with total asset visibility covering all spheres of operation. **Enterprise integration should be at the transaction level, not merely providing enterprise reporting via JMAR.**	2	2				1.3.3.31
1.0.14	End-to-End Shipment Tracking and Control	1	2		DMLSS JMAR functionality links with GTN to provide SOME shipment tracking functionality.	Transportation not controlled by AMEDD - no system out of the box can provide this - it is an interface issue.	1.3.4.2
1.0.15	Use enterprise data warehousing to integrate national and theatre level Class VIII management and promote uniformity of Class VIII data.	2	2				2.2.3
1.0.16	Enhance Common Understanding of Data (Eliminate Stove-Piped Applications and Reliance on Individual Expertise)	2	2	There are a lot of home-grown applications at USAMMCE. While these applications may support their business, it is not integrated and not documented for integrated use.			
1.0.17	Ability to maintain reliable history data for trending analysis and decision support	1	2		JMAR provides history for selected areas. In the process of enhancing from data repository to data warehouse to allow more across the broad capture of history data. NOTE: DMLSS Wholesale's CDMA provides this function at the wholesale level, and DMLSS IM provides history data at the retail level.	1. DMLSS retains history data. See LTC Sees notes in General Comments. 2. We don't have the data to do historical analysis yet. But DMLSS is programmed to accommodate 8+ years of data in either an active or archived mode.	1.3.1.1.1.2
1.0.18	Interface with Inter / Intra Theatre distribution	2	2				2.2.3

1.0.19	Flexible, robust, easy to use adhoc reporting	1	2		Business Object is robust but not easy to use.	1. Business Objects was selected based in large part on Gartner evaluation of their product as one of the leaders in this area. 2. And some other program would be easier? We're going with the industry standard.	1.3.2.2.1.63-77
1.0.20	Facilitate financial interface and reporting.	2	2				1.3.1.2.1.113-118
1.0.21	No batch processing	1	2		There are some basic batch processing, for example: JMAR data refresh, but it has no impact on system availability.	If the requirement is no batch processing, it is a suspect requirement. There are some functions that are more efficient in a batch mode than in real time.	1.3.2.2.1.6
1.0.22	Responsive system support (24x7)	2	2				4.1.2.1.2
1.0.23	Leverage enterprise architecture to drive business decisions.						
1.0.24	Manage multiple supply activities in a single, integrated database environment with central management.						
1.0.25	System should provide QA/ QC functionalities.						
Section 2.0	**Functional Requirements**						
2.1	**Material Management**						
2.1.1	**Business Processes**						
2.1.1.1	Purchasing / Asset Requisition	2	2				1.3.2.8.1.71
2.1.1.2	Local Purchasing IMPAC	2	2				
2.1.1.3	Cataloging	2	2				1.2.3.2.1.1.74-81
2.1.1.4	Special / Cyclic Inventory	2	2				1.3.2.8.1.54-55
2.1.1.5	H-Pri Processing	2	2	High Priority processing with expedited picking of stock with specially arranged shipping and tracking.			1.3.2.8.1.10
2.1.1.6	Inventory Adjustment	2	2				1.1.3.6.1.16
2.1.1.7	Turn-In / Management of Dated and Deteriorating Items	2	2				1.1.4.4.130
2.1.1.8	Report of Discrepancy (ROD)	2	2				1.2.3.2.3.1.22-26
2.1.1.9	Excess	2	2				
2.1.1.10	Returns (Pharmaceuticals, Receiving Station)	2	2				1.3.1.8.1
2.1.1.11	Denial	2	2				1.1.4.4.160-162
2.1.1.12	Re-stratification	2	2	Re-assigning inventory status (e.g. removal of expired items from active stock, or adding back to active stock from turn-in).			1.3.2.3.1.9
2.1.1.13	Destruction / Materiel Disposition Processing and Management	2	2				1.1.3.1.19
2.1.1.14	Temperature Monitors (Pharmacy). **System should support cold train management.**	2	2	Can store temperature readings			1.1.4.4.125
2.1.1.15	Location Survey / Inventory Accuracy Management	2	2				1.3.2.6.1.34
2.1.1.16	QM System Audit / Physical Inventory Audit Functions	2	2				1.3.3.30.2

2.1.1.17	Free Issue	2	2	Moved from the Set Assembly, Reconstitution, and Disassembly section.			1.3.3.30
2.1.1.18	Receiving	2	2	Moved from the Set Assembly, Reconstitution, and Disassembly section.			1.3.3.30
2.1.1.19	Issuing	2	2	Moved from the Set Assembly, Reconstitution, and Disassembly section.			1.3.3.30
2.1.2	**Requirements**						
2.1.2.1	Customer Relationship Management	2	2				
2.1.2.2	Need more room to input customer information than currently provided by TAMMIS	2	2				1.3.5.7.1
2.1.2.3	Edit customer information at the source and do it once.	2	2				1.3.5.7.1
2.1.2.4	Need to track offline requisition and provide the ability to segregate off-line orders by owner instead of mixing all off-line orders.	2	2				1.2.3.2.2.1.21
2.1.2.5	System should track credit for customer turn-in and returns.	2	2				1.3.1.8.1
2.1.2.6	System should track pharmaceutical returns and dollar impact.	2	2				1.3.1.8.1
2.1.2.7	Standardize from submission for Excess Turn-in.	2	2				1.3.1.8.1
2.1.2.8	Establishment and Maintenance of Supplier Relationships	2	2				
2.1.2.9	Flexibility in vendor selection - many to one relationship should be provided.	2	2				1.2.3.2.2.1.21
2.1.2.10	Establishment and Maintenance of Contracts and Other Procurement Instruments, including Purchase Cards	2	2				
2.1.2.11	Inventory Requirements Analysis	2	2				
2.1.2.12	Item Master File Establishment and Maintenance	2	2				
2.1.2.13	Consistent and standardized catalog scheme	2	2				1.2.3.2.2.1.127
2.1.2.14	System should perform pricing comparison at catalog time.	2	2				1.2.3.2.2.1.47
2.1.2.15	Catalog needs to process both National Drug Code (NDC) and the NSN code. **The system should capture DoD catalog data elements, allow item number cross references and the capability to relate one item number to multiple item identifiers.**	2	2				1.2.3.2.2.1.127 may need user-defined field

2.1.2.16	Re-order trigger should be allowed to be different by location vs. one enterprise re-order standard.	2	2				1.3.1.1.1.14
2.1.2.17	System should allow new item request.	2	2				1.3.1.2.1.163
2.1.2.18	System should allow segregation by item categories for processing and reporting.	2	2				1.3.1.3.1.124
2.1.2.19	Maintenance of Orders	2	2				
2.1.2.20	Due Out to Customers	2	2				
2.1.2.21	Due IN to Distribution Center	2	2				
2.1.2.22	System should provide confirmation on due-in process to track requisitions on order.	2	2				1.2.3.2.2.239
2.1.2.23	Need flexibility to adjust / override re-order. Current shipment time may be too long to replenish low on-hand stock.	2	2				1.2.3.2.2.69
2.1.2.24	Invoice Processing and Payment	2	2				
2.1.2.25	Transaction History Reporting and Management	2	2				
2.1.2.26	Need to track usage and perform trend analysis to enhance predictive capability.	2	2				1.3.2.5.1.80
2.1.2.29	Requisitions	2	2				1.2.3.2.2.14
2.1.2.30	Pre-edit requisitions from multiple sources (e.g. supplemental address verification)	2	2				1.2.3.2.2.14
2.1.2.31	Ability to copy and assign new call number when request exceeds order level. (Document number is used, but assigned call number is preferred).	0	2	The current system TAMMS can copy and assign a new Document Number to take care of the over the limit order. The Army would like to control this by Call Number. **Note. This is a business issue resulting from the 'Fill & Kill' agreement with prime vendors.**		?	1.2.3.2.2.1.163/220
2.1.2.32	Need to process MIstrip format	2	2	MIstrip is a 80-column card record format. It is a record layout that is widely used by the Army.			
2.1.2.33	Need workflow to route requisition exceptions to Item Manager for review and approval	2	2				1.2.3.2.2.45-47
2.1.2.35	Need capability to have partial issue, back order, option to partial fill, **partial issue, pass** and partial cancellation.	2	2	Incorporated Requirement 2.1.2.34 by adding 'partial issue and pass'. Requirement 2.1.2.34 was moved to the Deletion section.			1.2.3.2.2.151
2.1.2.36	System should facilitate 'source and ship' - capture order at the enterprise level and alert potential provider(s) with automated workflow and notification.						

2.1.3	**Enhancement Considerations**						
2.1.3.1	Safety Stock Planning		2	Analyze critical items and develop replenishment strategies to ensure product availability during times of unexpected high demand		Readiness Management Application (RMA) is designed to provide this planning at the enterprise level - actually analyzing critical items, analyze availability, and sourcing options. Used to identify candidates for alternate sourcing strategies (for example VMI).	
2.1.3.2	Supply Planning		2	Smooth the flow of material through the supply chain. Considers time phased replenishment, distribution and material requirements, capacity constraints, and quotas. Optimize sourcing decisions and product mix; plan the trade-off between delayed fulfillment and inventory costs; plan an optimal supply path for multi-state fulfillment; create supply allocations for customers		Single application will not control supply chain between all nodes. Transportation community and their systems control all the transportation legs. Not a systems issue - an organizational issue at highest levels of DoD.	
2.1.3.3	Distribution Planning		2	Optimize distribution of available supply in response to short-term demand, including customer orders, stock transport requirements, and safety stock requirements. Includes push and pull deployment to bypass due dates; fair share deployment to allocate scarce stock; and transport load building to ensure transport vehicles are filled to capacity		This high level requirement is controlled primarily by transportation community.	
2.1.3.4	Order Promising		2	Determine product availability across a global fulfillment network or determine build/substitution capabilities. If product is not available, determine a feasible availability date and incorporate procurement of the item into the master schedule		Functionality that is dependent on sharing of data with trading partners - not primarily a system issue - no application will provide this out of the box.	
2.2	**Distribution and Transportation**						
2.2.1	**Business Processes**						
2.2.1.1	Distribution of Daily Cycle	2	2				1.3.3.18
2.2.1.2	Receiving	2	2				1.2.3.2.1.1
2.2.1.3	Remote Receiving	2	2				1.2.3.2.1.1.19
2.2.1.4	Re-consignment	2	2				1.1.2.3.12
2.2.1.5	Prime Vendor	2	2				1.2.3.2.2.1.21
2.2.1.6	Local Purchase	2	2				1.2.3.2.2.1.101
2.2.1.7	Depot Stock Item	2	2				1.2.3.2.2.1.95
2.2.1.8	Picking (Hazmat, Bin, Bulk, Reefer)	2	2				1.3.2.1.1.24
2.2.1.9	Replenishment (Hazmat, Bin, Bulk, Reefer)	2	2				1.3.3.28
2.2.1.10	Vault	2	2				1.3.5.8.1.23
2.2.1.11	Picking R&Q Items	2	2				1.3.5.8.1.23
2.2.1.12	Receiving Vault Registered Mail	2	2				1.3.5.8.1.23
2.2.1.13	Receiving Vault Prime Vendors	2	2				1.3.5.8.1.23
2.2.1.14	Vault Station Returns	2	2				1.3.5.8.1.23

2.2.1.16	Destruction of Vault Materiel	2	2				1.3.5.8.1.23
2.2.1.17	Transportation Preparing Documents	0	2			There isn't a requirement here - - just a heading. Why the zero?	1.3.4.2.1
2.2.1.18	Shipping	0	2			There isn't a requirement here - - just a heading. Why the zero?	1.3.5.2.1
2.2.1.19	Repack Shipping (AMC, Embassy, Mail, Registered Mail, UPS)	0	2			There isn't a requirement here - - just a heading. Why the zero?	1.3.5.2.1.10
2.2.1.20	Frustrated Shipment	0	2			There isn't a requirement here - - just a heading. Why the zero?	1.3.5.2.1
2.2.2	**Requirements**						
2.2.2.1	Inbound Shipment Processing, Scheduling and Notification	2	2				1.3.3.10
2.2.2.2	Inbound Item Research and Due-in Reconciliation	2	2				1.3.3.10
2.2.2.3	System should allow partial receiving.	2	2				1.2.3.2.2.1.156
2.2.2.3.a	System should be able to produce internal location tags.						
2.2.2.4	Outbound Shipment Processing, Scheduling and Notification	0	2			There isn't a requirement here - - just a heading. Why the zero?	1.3.3.20
2.2.2.5	Outbound Item Research and Due-out Reconciliation	0	2			There isn't a requirement here - - just a heading. Why the zero?	1.3.3.20
2.2.2.6	Need ability to sort and pack shipment by customer, not by space.	0	2			1. DMLSS has capability to sort pick list and distribution list by customer. 2. I'm missing something here - are we talking something other than a pick ticket?	1.3.3.22
2.2.2.6.a	System should generate shipping document for due-out customer.						
2.2.2.7	In-Transit Visibility (Inbound and Outbound)	1	2		In-transit visibility functions are partly supported by JMAR.		1.3.3.25
2.2.2.8	Improve shipment tracking and reporting.	0	2			1. Controlled by Transportation Systems 2. This is a goal statement, not a requirement statement. How do you grade it? And how do you grade carrier performance?	1.3.3.25
2.2.2.9	Picking should be tightly integrated with Transportation.	0	2			1. Controlled by Transportation Systems 2. This is a goal statement, not a requirement statement. How do you grade it? And how do you grade carrier performance?	1.3.3.22
2.2.2.10	System should allow tracking of carrier performance.	0	2			1. Controlled by Transportation Systems 2. This is a goal statement, not a requirement statement. How do you grade it? And how do you grade carrier performance?	1.3.4.2.1.80
2.2.2.11	Need ability to **read / generate automated manifesting media (e.g. AMS cards, RF tags)**	0	2			Controlled by Transportation Systems	1.3.3.25
2.2.2.12	Materiel Release Order (MRO) Processing	2	2				

2.2.2.13	Need to sort MRO by location to facilitate picking. Want capability to pre-sort by customers.	2	2				1.3.3.22
2.2.2.14	System should support paperless picking with electronic QC (scanner check).	0	2				1.3.3.21
2.2.2.15	Automate load planning while picking by providing accurate weight and cube information.	0	2				1.3.3.23
2.2.2.16	Automate scanning of MRO to labels and integration with TCN and TCMD generation.	0	2				1.3.3.22
2.2.2.17	Cargo Manifest Generation and Management - **allow bundling by customer and hierarchy.**	0	2				1.3.3.24
2.2.2.18	Customs Scheduling, Planning and Clearance Management	0	2				
2.2.2.19	Intermodal Freight Planning	0	2				
2.2.2.20	Warehousing Space Management	0	2				
2.2.2.20.a	Re-Warehousing and Re-Configuration Management	0	2	Combining Requirement 2.2.2.31 under Warehouse Management.			
2.2.2.21	Location Assignment and Maintenance	0	2				
2.2.2.23	Special Storage	2	2		See above		1.3.5.8.1.23
2.2.2.24	Controlled Substance	2	2				1.3.5.8.1.23
2.2.2.25	Pilferable Substance	2	2				1.3.5.8.1.23
2.2.2.26	Medical Gases	2	2				1.3.5.8.1.23
2.2.2.27	MNBCDM	2	2				1.3.5.8.1.23
2.2.2.28	Humidity and Temperature Control	?	2			DMLSS provides for designation of just about any special handling requirement.	1.3.5.8.1.23
2.2.2.29	Allow code for special item e.g. Hazmat, for better visibility, tailored processing and tracking.	2	2		DMLSS provides this functionality through the Universal Data Repository and Item Master Record information.		1.3.5.8.1.23
2.2.2.30	Segregation of reporting to separate vault items and other special items for better visibility and control	2	2				1.3.5.8.1.23
2.2.3	**Enhancement Considerations**						
2.2.3.4	Returnable Shipping Containers		2	Requirements 2.2.3.1 - 2.2.3.3 were moved to the Deletion section.			Track shipment of returnable shipping containers
2.3	**Medical Equipment Maintenance**						
2.3.1	**Business Processes**						
2.3.1.1	Supply	2	2				1.3.1
2.3.1.2	Acceptance of X-Ray / CT **(Link to transportation, allow TCN tracking and status reporting),**	2	2	Scheduling acceptance date, perform acceptance inspection and establish required documentation for sensitive equipment.			1.1.4.4.175
2.3.1.3	Repairs (Optical, Electronic, Anesthesia, Dental, X-Ray, External)	2	2				1.1.5.2
2.3.1.4	Calibration **(TMDE)**		2				1.1.5.2
2.3.1.5	Contract management / Oversight			Business process added per request. Not defined formally as part of ISO 9001.			

2.3.2	Requirements						
2.3.2.4	Acceptance Inspection	2	2	Requirements 2.3.2.1 - 2.3.2.3 moved to the Deletion section.			
2.3.2.5	Equipment Cataloging, including Components and Spare Parts	2	2				
2.3.2.6	Determine Scheduled Maintenance Requirements	2	2				
2.3.2.7	Scheduled and Unscheduled Work Order Management	2	2				
2.3.2.8	Automated Work Orders	2	2				1.1.4.5.248
2.3.2.9	Remote Input and Update for Work Orders	2	2				1.1.4.5.248
2.3.2.10	Web Access (Request Submission and Inquires)	2	2				1.1.4.5.248
2.3.2.11	Need historical tracking for item replacement to enhance predictive maintenance and spare part ordering.	2	2				1.2.3.2.1.1.209
2.3.2.12	Quality Assurance	2	2				1.3.3.12
2.3.2.13	Inventory Equipment Items (Equipment Type, Serial Number)	2	2				1.3.2.8.1.150
2.3.2.14	Need to track serial number **and warranty** of dental hand pieces.	2	2				1.3.5.6.1.75
2.3.2.15	Need to reconcile and improve tracking with central receiving.	2	2				1.3.3.25
2.3.2.16	Contracts and Contract Repair Process, **including one-time contract.**	2	2				1.1.5.2
2.3.2.16.a	Include repair part definition in catalog						
2.3.2.16.b	Allow custom identification						
2.3.2.17	Manage Repair Parts	2	2				1.1.5.3.19
2.3.2.18	Manage Maintenance Documentation	2	2				1.3.2.8.1.153
2.3.2.19	JCAHO requires maintenance records and audit trail of mandated maintenance.	2	2				1.3.2.8.1.153
2.3.2.21	Equipment Loans and Float Item Program Processing	2	2				1.3.3.4.23
2.3.2.22	Management of Excess Equipment	2	2				
2.3.2.23	Equipment Disposition Management	2	2				
2.3.2.24	System should allow equipment in Property Book for service maintenance purpose only with no actual ownership.	2	2				1.3.5.7.1.36
2.3.2.25	Need the capability to open Work Order without creating Property Number.	2	2				1.3.5.7.1.36
2.3.2.28	TMD calibration and support - manage customer TMDE and track in system for TMDE issuance.						
2.3.2.29	Capture MMQCD alert at time of receiving.						
2.3.2.30	Allow customer request and maintain status.						

2.3.2.31	Automated checklist for calibration / verification services that can be performed both online and offline.						
2.3.2.32	Maintain digital library for all equipment linked into work orders using Equipment ID.						
2.3.2.33	Maintain training / skill sets identified by technician.						
2.4	**Set Assembly, Reconstitution, and Disassembly**						
2.4.1	**Business Processes**						
2.4.1.1	Customer Request for Assembly	2	2				1.2.3.2.2.1
2.4.1.2	Receiving Sets for Disassembly / Determine Material Disposition	2	2				1.2.3.2.2.1
2.4.1.3	Receiving Sets for Reconstitution / Return to Storage Mode	2	2				1.2.3.2.2.1
2.4.1.4	Ordering	2	2				1.2.3.2.2.1
2.4.1.5	Receiving / Storage	2	2				1.2.3.2.2.1
2.4.1.6	Inventory	2	2				1.3.3.30
2.4.1.7	Materiel Surveillance / Location Survey	2	2				1.3.3.30
2.4.1.8	Stock Rotation	2	2				1.3.3.30
2.4.1.9	Transfer Outs	2	2				1.3.3.30
2.4.1.10	Re-stratification	2	2				1.3.3.30
2.4.2	**Requirements**						
2.4.2.1	Bill of Materials (Set) Design and Management	2	2				1.3.5.4
2.4.2.2	System needs to allow copy of sets.	2	2				1.3.1.4.1.45
2.4.2.3	Set assemblage and 'push package' design should be driven by trended field demands.	2	2				1.3.5.4.1.8
2.4.2.4	Provide more real-time trend analysis - **Allow detail analysis and 'what-if- simulations.**	2	2				1.3.5.9
2.4.2.5	Set Issue and Tracking	2	2				1.3.1.3.1.77
2.4.2.5	Need to track expiration date and condition codes for stock rotation and upgrade.	2	2				1.3.5.7.1.21
2.4.2.6	Set Configuration Management - **An automated system that prioritizes SKO component requirements by individual unique SO and project.**	2	2				1.3.5.4
2.4.2.7	Component Review and Modernization	2	2				1.3.5.3
2.4.2.8	Contents Tracking	2	2				1.3.5.4.1
2.4.2.9	Need 'Sub-DODACC' to allow identification and grouping of related set stock together.	2	2	Function may already exist at USAMMA URL.			1.3.5.4.1
2.4.2.10	Management and Reconciliation of Authorization Documents	2	2				1.3.5.4.1
2.4.2.11	Management of Consumable Items Associated with Biomedical Equipment Items	2	2				1.3.3.30

2.4.2.12	Management of Set Equipment Scheduled Maintenance Requirements	2	2				1.3.5.1
2.4.2.13	Need 'QCD' to investigate individual sets - **Need to tie to set location, not just by stock number.**	2	2				
2.4.2.14	Set Planning, Programming and Budgeting	2	2				1.3.5.4.1
2.4.2.15	Need special code to request maximum shelf life for pre-positioned stock.	2	2				1.3.3.1.7
2.4.2.16	Management of Multiple Sets Commingled in Single or Separate Storage Locations **(Pinpoint location for easy retrieval)**	2	2				1.3.3.1.4.1.10
2.4.2.17	Need Warehouse Production Management System (WPMS) to automate HR resources allocation and prioritization for set building.	2	2	Need further input from D. Kramer.			1.3.2.6.1.52
2.4.2.18	Automate online Battle Book by providing 'go-to war' sets via website to authorized users. The information should include percentage filled, set make-up and condition.	2	2				1.3.2.6.1.52
2.4.2.19	Standardize set labeling across storage depots.	2	2		Will help standardization if DMLSS is used universally.		1.3.5.4
2.4.2.20	Standardize set builds.						
2.4.2.21	Need export function to pass on set information to receiving customer.						
2.4.2.22	Maintain skill database on set operations: planning, building, maintaining and reconstitution.						
2.5	**Customer Support**						
2.5.1	**Business Processes**						
2.5.1.2	Customer Action Request	2	2	New process. The system should allow the documentation of the Custom Action Request and provide tracking and reporting on status and closure.			1.1.5.3
2.5.2	**Requirements**						
2.5.2.1	Need notes capability to document.	2	2				1.3.5.6.1.29
2.5.2.2	Need ability to broadcast message to targeted customer base.	2	2				1.2.3.2.2.1.45
2.5.2.3	Automate customer help desk function with direct user access for issue reporting and track status.	2	2	Combined 2.5.2.3 - 2.5.2.4			1.3.3.12
2.5.2.5	System should document customer calls.						1.3.3.12
2.5.2.6	Customer support functions should be linked to the enterprise to facilitate issue resolution.						

2.6	**Optical Fabrication**						
2.6.1	**Business Processes**						
2.6.1.1	Production of Spectacles and Lenses	1	2			The first item on this checklist deducted a point for DMLSS being a integrated system. This is an integrated (and vague) requirement. DMLSS currently supports Optical Fab at Fort Jackson.	1.1.1
2.6.1.2	Optical Final Acceptance Inspection	1	2		Business process. No special systems requirements.	What's the actual requirement?	1.1.4.1.7
2.6.2	**Requirements**						
2.6.2.2	System should allow manual 'hot-key' to increase on-hand inventory.	?	2			What sort of requirement is this?	1.1.2.3.10
2.6.2.3	Need inventory management functions to manage optical stock ordered and received from Distribution Center.						
2.6.2.4	Need to track SRTS customer issues (could be tied to the same Help Desk function documented in the Customer Support section).						
2.7	**System Services**						
2.7.1	Document Management (Imaging, Text, Equipment manuals and Other) **to facilitate paperless processing.**	2	0	Incorporated Requirement 2.7.12 on Paperless processing.			
2.7.2	Handheld and Wireless Remote Processing Capability - **Need to identify specific PDA applications, which require special programming.**	2	2				2.2.3.1.6
2.7.3	Security Management	2	2				2.5.1
2.7.4	System Access Control	2	2				2.5.1
2.7.4.a	Need to comply with DoD Common Access Card (CAC) architecture.						
2.7.5	Physical Security Controls	0	0		Not system related requirement	Should not be scored zero for an NA requirement.	1.3.3.14.13
2.7.6	Web-based (allowing persistent network connection)	2	2				2.2.2.1
2.7.7	System Time-stamp for audit trail	2	2				1.1.2.3.45
2.7.8	Ability to **read / generate automated manifested media** (including RF Tagging)	0	2			Don't support this -- yet.	1.1.3.1.20
2.7.9	Bar-Coding (Reading and Label Printing)	2	2				1.1.3.2.1
2.7.10	Formatting for Pre-Printed Forms	2	2				1.3.5.9
2.7.11	Automated Work Flow	2	2				1.2.3.2.2.1.45
2.7.12	Paperless processing	1	2			Depends on process. Many processes have paperless options.	1.2.3.2.2.1.45
2.7.14	Online drill-down capability / **Adhoc query**	2	2				2.3.1.1.29
2.7.15	GUI Interface	2	2				2.3.2.1
2.7.16	Meet commercially accepted system performance standards.						

2.8	**Financial Accounting**						
2.8.1	Financial Inventory Reconciliation	2	2				1.2.1
2.8.2	Financial Inventory Adjustments	2	2				1.2.1
2.8.3	Financial Inventory Stratification	2	2				1.2.1
2.8.4	Price Change and Inventory Valuation Adjustment	2	2				1.3.1.3.1.167
2.8.5	Inventory Budget Formulation	2	2				1.3.1.2.1.151
2.8.6	Multi-Year Appropriations Management	2	2				
2.8.7	Defense Worldwide Working Capital Fund (DWWCF) Management	2	0				Might be handled via accounting functionality
2.8.8	Accepting, Obligating, Expensing, and Managing Customer Funds	2	2				
2.8.9	Sales Surcharges and Reimbursable Management	2	2				1.3.1.2.1.95
2.8.10	War Reserve and Prepositioned Inventory Management	2	2				1.3.2.2.1.28
2.8.11	Set Accounting, Including Management of Externally Owned Sets	2	2				1.3.1.4.1
2.8.12	Ability to apply cost surcharges recovery based on source of supply level.						
2.8.13	Ability to apply fund based upon acquisition type.						
2.8.14	Support purchase card reconciliation.						
2.8.15	System must be FFMIA compliant.						
2.8.16	CARE system for customer support			Moved from the Interface section per workshop discussion.			
2.8.17	Flexible financial reporting						
2.9	**Interfaces (Need to accommodate 2-Way Interfaces)**						
2.9.1	**Materiel Management**						
2.9.1.1	**DoDAAF** for DODACC to process customer verification)	2	**2**				Interfaces must be custom developed
2.9.1.2	Prime Vendor Interface	2	**2**				
2.9.1.3	E-CAT	2	**2**				
2.9.1.4	UDR	2					
2.9.1.5	Contract Database (for Prime Vendor)	2	**2**				
2.9.1.8	IMPAC Credit Card Interface for Local Purchases	2	**2**				
2.9.1.9	SPS (Standard Procurement System)	2	**2**	Replaced PR Web for Local Purchases		DMLSS does not have a PR web interface. It does have an SPS interface.	
2.9.1.10	TCAM	1				1. TCAM Interoperability in DMLSS 3.05 2. DMLSS has a TCAM interface. Don't know why this isn't a 2.	
2.9.1.12	QC Alerts downloads from USAMMA	2					
2.9.1.13	DAASC to feed EDI and MIstrip						

2.9.2	**Shipping and Transportation**						
2.9.2.1	DSS for Loading Planning	0				We do not support yet. To a great extent, DC specific.	
2.9.2.2	TC-AIM II	0		Replaced GTN an		We do not support yet. To a great extent, DC specific.	
2.9.2.3	Receive Pre-Alert from Shipper	0				We do not support yet. To a great extent, DC specific.	
2.9.2.4	QUALCOMM GPS Shipment Location Reporting	0				We do not support yet. To a great extent, DC specific.	
2.9.2.5	Shipper Status Reporting Weblink	2					
2.9.2.6	**PLEXIS** - Air Force Inventory System for PMI tracking	2					
2.9.2.7	ITV - In-Transit Visibility Interface						
2.9.2.8	DMLSS AMSA						
2.9.3	**Medical Equipment**						
2.9.3.1	**SAMS** (Medical Equipment)	0				We do not support yet.	
2.9.3.2	ULLS-**G** (Medical Equipment)	0				We do not support yet.	
2.9.3.3	AMEDD-PAS / **to be replaced by DMLSS ETM**	0				1. Legacy system being replaced by DMLSS. No interface required. 2. Why would DMLSS interface with the system that it's replacing?	
2.9.3.5	AMEDD Logistics Systems	1				Interfaces exist with TAMMIS and TCAM? 2. Which AMEDD LOG systems does this refer to?	
2.9.4	**Financial Accounting**						
2.9.4.5	SAMMS - Financial (DLA)						
2.9.4.6	ODS / STANFINS						
2.9.4.7	Financial accounting system for re-imbursable (labor, repair parts, contracts)						
2.9.5	**Miscellaneous**						
2.9.5.1	SRTS II for Optical Requests	0				Questionable requirement at best.	
2.9.5.3	Vehicle Scheduling Control System (for Motor Pool Management)	0				Questionable requirement at best.	
2.9.5.5	JMAR						
2.10	**Reports**						
2.10.1	Inventory Management Reporting Functions	2	**2**		Business Object can build any report as long as the Universe supports it.		Did not match report by report with SAP - report writing tool would be used to develop most custom reports
2.10.1.1	**Daily / Monthly** Stock Summary Report	2	**2**				
2.10.1.2	**Old** Due-In Status Report	2	**2**				
2.10.1.3	Zero Balance Report	2	**2**				
2.10.1.4	Available Order Report	2	**2**				
2.10.1.5	Inventory Adjustment Reports	2	**2**				
2.10.1.6	Pre-Information Report (PCN-RAH-SRR)	2	**2**				
2.10.1.7	Demand OST Report	2	**2**				
2.10.1.8	Replenish Order OST Report	2	**2**				

2.10.1.9	**Monthly / Quarterly** Transaction Report	2	**2**				
2.10.1.10	Quality Control Reporting Functions	2	**2**				
2.10.2	Shipping Management Report		**1**				
2.10.2.1	MRO Log Report	2	**2**				
2.10.2.2	Receipt Process Report	2	**2**				
2.10.2.3	Troubled Due-In Report	2					
2.10.2.4	REF Data Reports for Count Due-In and Due-Outs	2	**2**				
2.10.2.5	Stockaged Data Report	2	**2**				
2.10.2.6	Warehouse Reporting	2	**2**				
2.10.3	Financial Management Reporting Functions		**2**				
2.10.3.1	Financial Responsibility Statements	0	**2**			1. Do not understand this requirement in DoD context. DoD has separate systems for the formal general ledger accounting that are controlled by DFAS and Service Resource Management communities. Logistics system solution will have to interface with current DFAS environment. Formal financial statements will be generated in the DFAS systems. 2. I would suspect that this would be an easy requirement and could probably be built in the interim via BO.	
2.10.3.2	Financial Responsibility Invoice	0	**2**			1. Do not understand this requirement in DoD context. DoD has separate systems for the formal general ledger accounting that are controlled by DFAS and Service Resource Management communities. Logistics system solution will have to interface with current DFAS environment. Formal financial statements will be generated in the DFAS systems. 2. I would suspect that this would be an easy requirement and could probably be built in the interim via BO.	
2.10.3.3	Budget Reporting	2	**2**				
2.10.3.4	Invoicing	2					
2.10.4	Sets		**2**				
2.10.4.1	Set Readiness and Management Reporting	2	**2**				
2.10.5	Facility Management		**1**				
2.10.5.1	Quarterly Facility Maintenance Report to control in-house projects for Logistics Division	2					
2.10.5.2	Automate Inventory and Funding Reports to replace manual efforts by the Logistics Division	2	**2**				
2.10.6	Human Resources		**2**				

2.10.6.1	Workload Report	1	**2**			1. DoD has separate initiatives through the HRM communities to implement enterprise wide HRM tools - DIMHRS, and the MHS is developing another tool termed DMHRS-I. 2. Modular system -- integrated system. These requirements are not internally consistent.	
2.10.6.2	Budget Report	1	**2**			1. DoD has separate initiatives through the HRM communities to implement enterprise wide HRM tools - DIMHRS, and the MHS is developing another tool termed DMHRS-I. 2. Modular system -- integrated system. These requirements are not internally consistent.	
2.10.7	Medical Equipment		**2**				
2.10.7.1	2406 Report for TOE field equipment	2					
Section 3.0	**Industry Best Practices Enabled Through IT**						
3.1	**Supply Chain Coordination**						
3.1.1	Supply Chain Event Management		2	Monitor the events that take place across the supply chain. Detect, evaluate and solve problems in real time		This whole section assumes a degree of organizational integration that does not exist with respect to the problem at hand. DLA is the executive agent and chief acquisition arm for this commodity. Transcom is the strategic mover of the product. The Service theater transportation community is the tactical mover of the commodity. USAMMCE, USAMMC-SWA, 16th etc. are nodes in this chain. They do not control the chain or the systems that manage the other components of the chain.	
3.1.1.1	Notification		2	Auto-notification to partners and suppliers when a problem occurs, providing information needed to resolve the situation		Some degree of this occurs with current EDI 830 process and "r" codes used with Prime Vendors. Cause of unfilled orders provided in that feedback loop.	
3.1.1.2	Simulation		2	Auto-generation and evaluation of alternative solutions for problems		Readiness Management Application provides some degree of "what if analysis" capability.	
3.1.1.3	Adaptive Collaboration		2	Using the lessons learned/history of event data, enables planning and execution to adapt for the future (e.g. exclude carrier with a history of late deliveries)			
3.1.2	Supply Chain Performance Management		2	Used to define and monitor key performance metrics giving a comprehensive view of performance across the supply chain		JMAR functionality	
3.1.3	Contract Management		2	Both supplier and customer contracts can be improved through better insight into supplier and customer operations			

3.1.4	Service Life-Cycle Management	2	Combines SCM, CRM, and product life cycle management to meet ongoing needs after the initial sale/delivery.			
3.2	**Supply Chain Collaboration**					
3.2.1	Collaborative Planning, Forecasting, and F	2	Suppliers collaborate with the enterprise on order forecasts and perform joint planning and decision making. Improves cycle times, lowers inventories, and reduces fulfillment costs by providing real time visibility into forecasts and replenishment plans		This section is all dependent on collaboration with trading partners. System capabilities are relatively trivial. USAMMCE, USAMMC-SWA etc. are not the agents of collaboration with primary trading partners. That is done at DLA. Some capability in the arena exists and expansion is planned. DMLSS produces 830 transaction that advises prime vendor trading partners of usage levels. Currently exploring use of transactions (833?) to exchange product availability data with vendors. Short term looking to provide links to vendor web based systems to check item availability without having to exit DMLSS.	
3.2.2	Vendor-Managed Inventory	2	Allows vendors to take on replenishment planning tasks via visibility into inventory levels and demand forecasts			
3.2.3	Supplier-Managed Inventory	2	Uses the internet to gain visibility into the enterprise's suppliers' replenishment plans. Conversely, suppliers can view status of their items in the enterprise's system, receive automatic alerts when inventory levels get low, and respond quickly with updates.			
3.2.4	Collaborative Fulfillment	2	Provides visibility into finished products, parts, logistics schedules, and resources in real time. Provides ability to commit to order quantities based on actual stock, plans and allocations.			
3.2.4.1	Product Allocation	2	Managing the flow of products to end customers. Can match availability of goods to needs of individual customers.			
3.2.4.2	Demand and Supply management	2	Dynamically reassigning order and supply matches to respond to unexpected shifts in demand or short term supply changes.			

Section 4.0	**Pending Requirements for Further Discussion**						
	Materiel Management						**1.3.5.6.1.116**
2.1.2.27	MNBCDM Management	2	2				
2.1.2.28	Item Testing and Validation	2	2				1.3.3.1.28
	Distribution and Transportation						
2.2.2.22	System needs to know if storage location is empty to automate location management.	0	2	Need to consider the potential overhead and balance the costs vs. the benefits of this requirement.	Does not identify locations available nor does it remove a location when on-hand = 0		1.3.3.30
	Customer Support						
2.5.1.1	HAP Mission	2	2	Humanitarian Assistance Program. Receive HAP requirements, verify inventory, assign shipment and file documentation.			1.2.3.2.2.1
Section 5.0	**Requirements to be Deleted Per Workshop Discussion**						
	Materiel Management						1.3.5.6.1.116
2.1.2.34	Need flexibility to pass on option at the line item level	2	2				1.2.3.2.2.156
	Distribution and Transportation						
2.2.3.1	Pre-receiving		2				Processing shipment information from suppliers prior to its arrival - to speed up the receiving process
2.2.3.2	Trailer / Yard Management		2				Tie trailers to receiving reports, shipping manifests and dock appointments
2.2.3.3	Wave Planning		2				Grouping orders into waves of shipments
	Medical Equipment Maintenance						
2.3.2.1	Equipment Budgeting and Approval Processing	2	2	High level planning - Out of scope for Intermediate level			
2.3.2.2	Technology Insertion and Equipment Modernization Management	2	2	High level planning - Out of scope for Intermediate level			1.3.2.8.1.153
2.3.2.3	Equipment Requisition / Purchase	2	2	High level planning - Out of scope for Intermediate level			
2.3.2.20	Equipment Life-Cycle Requirements Planning	2	2	High level planning - Out of scope for Intermediate level			
2.3.2.26	Need Blanket Purchase Agreement (BPA) processing for one-time payment.	2	2	Incorporated into Requirement 2.3.2.16 - Contract Management.			1.2.3.2.2.1.57
2.3.2.27	Need to process discounts.	1	2		Process overall discount, not on SOS level	1. Unsure of requirement. DMLSS will reflect price variation at the item level??? 2. Specific comments would depend on exactly what this is talking about.	1.2.3.2.2.1.137
	Interfaces						
2.9.1.6	Vendor Catalogs	2	**2**	Deleted from the Interface section because this is a link not an interface.			
2.9.1.7	Contract Number Cross Reference for Local Purchases	2	**2**	Deleted from the Interface section because this is a link not an interface.			
2.9.1.11	CMIT / CFIT for Inventory Control	2					
2.9.4.1	Army Financial and Payroll Systems	2	**2**				
2.9.4.2	Cost Accounting System	2	**2**				

2.9.4.3	DPAS Property Book (Including Non-Owned Equipment)	1				1. AMEDD does not use DPAS. 2. Not sure why this would be a requirement at Army DC when legacy systems do not do it.	
2.9.4.4	DBCAS-RM for Commitment	2					
2.9.5.2	DRIPS system for Blood Bank processing (16th MLB only)	2			This is the Defense Blood Standard System (DBSS).		

Appendix E

MC4 Equipment, Operating Systems, and Supporting Software